

**How Does Technology Impact On the
Self-beliefs of Adult Basic Education
Learners?**

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Education
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Declaration

I hereby declare that this is entirely my own work and that it has not been submitted for the award of any degree at any other university.

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Abstract

Adult Basic Education learners return to education to solve a problem of inadequacy in life hence many adult basic education learners engage in the learning of basic skills to meet their needs in life than for the education itself. Due to feelings of inadequacy, in many instances the adult basic education learner displays low beliefs in abilities and capabilities which if not properly managed and enhanced can negatively impact on learning and consequently the meeting of those needs which prompted the learner's return to learning.

With the rise of the use of technology in education, it is important to investigate and describe how computer technology impacts on the beliefs of capabilities that adult basic education learners hold of themselves.

Key Words: *Adult Basic Education, Computer Technology, Self-beliefs, Confidence.*

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List of Abbreviations

ABE	Adult Basic Education
AECT	Association for Educational Communications and Technology
CDB	Community Development Board
Co.	County
FETAC	Further Education Training Awards Council
ICT	Information and Communications Technology
IT	Information Technology
NALA	National Adult Literacy Agency
OECD	Organisation for Economic and Co-operative Development
Q	Question
SB	Self-beliefs
Tech	Technology
UK	United Kingdom
USA	United States of America
VEC	Vocational Education Committee

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Paper Structure

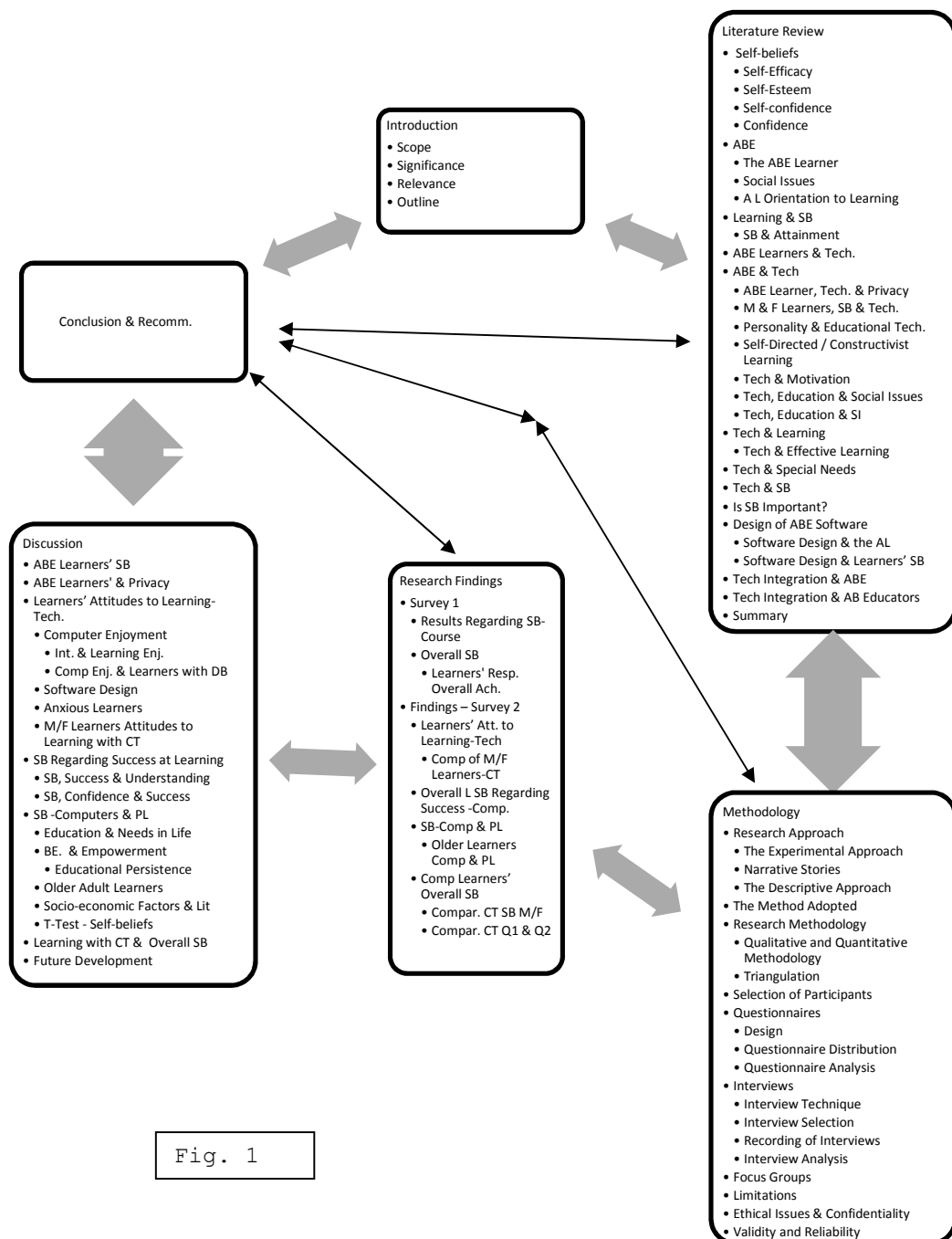


Fig. 1

Chapter 1 Introduction

1. Introduction

Education has been faced with challenges of improving the effectiveness of teaching and learning outcomes over the years. This quest has led to the involvement of information and communications technology (ICT) in education. The declining cost, the continued convergence of computing and communication technologies and the availability of multimedia communication have drawn the attention of Education providers (Liang and McQueen, 1999). As adult learners have matured over the years, so also have the technology and the capabilities offered (Neely et al, 1998). Web based instruction, Instruction via DVDs, CDs, video and other interactive technology have been widely adopted by learning institutions. Educationists however, seem divided on the impact of the integration of technology into the learning environment.

Technology in education includes a variety of media but for the purpose of this research, technology refers to the computer as the primary technology tool.

The demand for adult basic education increases when adults return to education to avoid social and economic marginalization (Scanlon, 2008). Adults who have not

been involved in education for a length of time, or who for various reasons do not possess any basic education search for opportunities to return to learning. The various technologies available may or may not suit all adults' learning styles, perceived fear of returning to education, attitudes to learning and self-beliefs. Incorporating computer technologies into teaching has its effects, whether this effect has positive impacts on learners' self-beliefs, depends on variables which will be considered during the research.

1.1 Scope

Adult literacy learners display traits related to low self-esteem that set them apart from other groups of learners (Jaffee, 2001). Some learners find returning to learning daunting and thus exhibit some fear (Learning Ireland Network, 1999). This creates to a large degree some display of lack of belief in learner's own capability which has influenced this research. Bénabou and Tirole (2000) emphasise the importance of self-beliefs by stating that the maintenance and enhancement of self-esteem has always been identified as a fundamental human impulse. Hence the following questions are the main focus of this research:

- Do adult basic education learners enjoy learning with technology?

- Does technology impact positively on the self-beliefs of adult basic education learners with regards to success in learning?
- Does technology help adult basic education learners believe better in their abilities and capabilities?
- Are adult basic education learners empowered by technology?

The adult learners participating in the research have completed education at the primary level but due to various reasons such as family, work and financial commitments, have not been opportune to proceed on to second level education.

Technology is widely varied but the use of technology in this thesis refers to use of digital media such as software on CDs, DVDs, web based software, video, internet and email and basic education in this research incorporates computer literacy, numeracy and literacy (see Appendix 28).

1.2 Significance

In Ireland, the National Adult Literacy Agency [NALA] (2009) recommends that good literacy practice should start with the needs and interests of the individual. It should be concerned with personal development, confidence building as well as the acquisition of technical skills (NALA, 2009). Berenson et al (2008) discovered that

learners with emotional intelligence performed better academically than learners with lower emotional intelligence. Emotional intelligence involves self awareness of one's own feelings and needs.

The question about how adults learn has been studied by scholars for so many years; Merriam (2001) claims that answers are yet to be realised as to the theory or model of adult learning. It has however become essential and in fact a matter of urgency to research further into adult learning especially with the rise of technology innovation in education. The variety of educational material on the internet, CD ROMs and DVDs seems to suggest that technology in education is here to stay and future educational plans show involvement with technology. NALA (2008) in Ireland, introduced distance learning via www.writeon.ie for adult literacy learners. Stern (1991) advises that for United States to achieve the goals, which were set by US government regarding education, technology would be likely play an important role. Since the use of computers in education has blossomed over recent years, this research will focus on the effects of ICT in education and in particular on the self-beliefs of adult basic education learners rather than on the technology itself. Self-efficacy beliefs have been shown to have a significant impact on student performance; which implies that as the learner's confidence levels increase, the learner performs better (DeTure, 2004).

1.3 Relevance

Selwyn (2000) highlights that as computers and education move into a new era of importance, there is the need for more research to aid in discovering how computing in education is currently working out.

The importance of further research into computers in education is emphasised by Eraut (1991), who states that the debate about technology in education lacks reliable evidence on effectiveness. Eraut (1991) also stresses the significance of the knowledge of innovation in education as valid and relevant.

Furr et al (2005) agree that it has become increasingly important to assess the role of computers in the classroom and determine whether the technology provides intended results especially with many literature stressing the low confidence and low self-worth displayed by adult literacy learners. This will be further discussed in Chapter 2 of this paper.

1.4 Outline

This paper will investigate adult learners' reactions, comfort levels and true feelings to the use of computer technology in the classroom. This will identify what implications exist for the self-beliefs of the adult

basic education learner. In addition, the research into the integration of technology into adult basic education will determine the usefulness and effectiveness of computers in promoting learning.

Research to date seems to focus on mainstream education. There is a need to understand the implications of technology for basic education learners in literacy, numeracy and computer literacy. This research attempts to provide information on the impact that computers have on learners and on learning with a focus on issues regarding learners' self-beliefs.

In chapter 2, this research will review and discuss current research literature on similar topic. Chapter 3 will discuss the methodology used for the investigation and gathering of results while chapter 4 presents findings from questionnaires, focus groups, interviews and tutor observations. Chapter 5 will discuss the findings, implications of these findings and compare to current literature. Chapter 6 presents conclusion and recommendations.

Chapter 2 Literature Review

2.1 Self-beliefs

Valentine and Dubois (2005) state that self-concept, self-esteem and self-efficacy all share in common the person's beliefs about his/her attributes and abilities. Self-beliefs have a major influence on the choices people make, how much effort will be put into what needs to be done and how much perseverance is displayed in time of difficulties. Self-beliefs also affect an individual's resilience (Bandura, 1989). Research by Lock et al (1984) reveal how one's beliefs in possessed capabilities can affect the productive creativity of the individual.

Since self-beliefs have an impact on self-esteem, self-confidence and self-efficacy, discussions about self-beliefs in this paper will involve these various areas of the concept of self.

Prior to further discussions in this paper, it is essential to define and understand these concepts of self.

2.1.1 Self-Efficacy

Bandura (1986) believes that how people behave can be predicted by the beliefs they have of their capabilities.

Bandura (1986) refers to these beliefs as self-efficacy beliefs.

Bandura (1977) described self-efficacy as the belief that one's ability and knowledge are enough to be successful at a given task. Bandura (1986) further explained self-efficacy using the theoretical framework of social cognitive theory (fig 2.). This theory explains that human achievement depends on interactions between a person's behaviours, personal factors and environmental conditions. The theory views people as self-organizing, taking the initiative, self-reflecting and self-regulating rather than as just reactive humans, shaped and guided by environmental forces or driven by hidden inner impulses (Pajares, 2002).

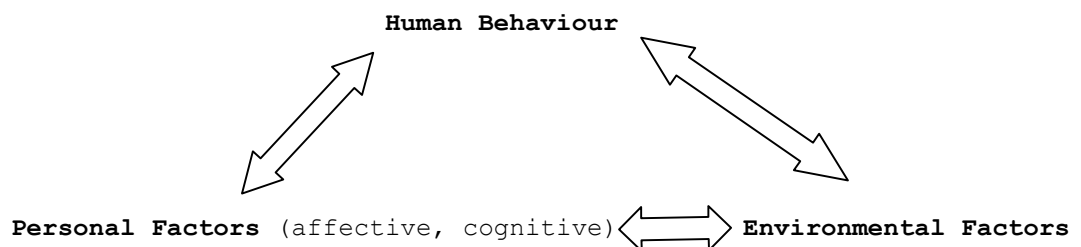


Fig. 2 - Bandura's Concept of Triadic Reciprocity

Behaviourist, Skinner (1974) assumes that human functioning is dependent on external stimuli, but Bandura (1986) argues that human behaviour cannot be explained without reference to the thoughts influencing the actions of the individual.

2.1.2 Self-Esteem

Self-esteem involves the confidence in our ability to think and cope with life's basic challenges. Self-esteem is the confidence in our right to be successful and happy, achieve our values and enjoy the results of our efforts (Branden, 1994).

The way we feel about ourselves depends on the success with which we accomplish what we wish to accomplish and James (1890) calls these beliefs self-esteem. James (1890) goes on to advise that self-esteem can be raised by successful endeavours or by giving up on some pretensions. James (1890) put this statement in mathematical formula which is the oldest definition of self-esteem (Mruk, 2006):

$$\text{Self Esteem} = \frac{\text{Success}}{\text{Pretensions}}$$

Ecclestone and McGivney (2005) are of the opinion that self-esteem should not be a primary focus of education, but Kennedy (1997) argues that education is more than a practical and educational necessity but also a means to self-esteem and social involvement. Brunner (1996) asserts that if esteem is important to the concept of self, then there is the need for school practices to be

examined with an aim to discovering what contributions can be made to the learners' self-beliefs. This is especially important since teachers are aware that the beliefs people get into their heads become the rules that govern their actions (Pajares and Schunk, 2002).

2.1.3 Self-confidence

A person's self-confidence on the other hand is derivable from memories which have been affected by past experiences of activities. The activities are those which the person had previously been engaged in (Bandura, 1977); an individual's self-confidence is also derived from judgments of one's own abilities to organize and achieve specific goals (Bandura, 1986). Tett and Maclachlan (2007) concur that self-confidence is generally accepted as the measure of one's belief in one's own abilities.

2.1.4 Confidence

Webster's English Dictionary (2005) describes confidence as possessing a strong belief in one's own abilities, firm trust and boldness. One is feeling sure of oneself and one's aim. One is certain, self reliant, self assured and bold with no fear of failure. McKinney (1960) explains that confidence is a basic personality trait. Confidence is widely accepted as situation specific and can be affected by internal and external factors (Keller, 1979).

Confidence in one's abilities and efficacy can help the individual undertake more ambitious goals and persist in the face of adversity (Benabou and Tirole, 2002). Naime-Diefenbach (1991) however believes that a learner may still possess confidence without the guarantee of success when within certain boundaries.

These self-beliefs in relation to adult basic education and technology use will be further explored.

2.2 Adult Basic Education

Huge importance is being placed on the acquisition of literacy and numeracy skills to enhance the employability, community participation and remuneration of citizens. In the USA, about 40% of the population has literacy and numeracy problems. In 2003, the UK government acknowledged that millions of adults have less than the literacy and numeracy skills expected of an 11 year old (Organisation for Economic and Co-operative Development [OECD], 2008). 22% of the Canadian population have problems dealing with printed material (Canadian Literacy and Learning Network, 2002) and costs the nation about 10 million Canadian dollars per year to deal with.

The National Adult Literacy Agency (NALA, 2009) in Ireland reported a total of 7,609 calls in 2009 for assistance with basic skills such as reading, writing, spelling and basic mathematics (NALA, 2009) and 30% of

the work force in Ireland has less than upper secondary education qualification. The OECD's International Adult Literacy Survey found that one in four adults surveyed in Ireland did not possess the confidence and literacy skills needed to participate effectively in society. Ireland has over 440, 000 adults in the workplace without adequate literacy skills (Monaghan, 2006); learners participating in Vocational Education Committee (VEC) literacy schemes in Ireland have increased from 5,000 to 35,000 from 1998 to 2005 (NALA, 2009).

County Donegal has the highest number of people who stopped attending education after the age of 15 and County Donegal ranks the highest in Ireland out of all the counties in terms of people with no primary or formal education (Donegal Community Development Board [Donegal CDB], 2009).

2.2.1 The Adult Basic Education Learner

Neely et al (1998) describe the adult learner as a person who returns to full-time or part-time learning after spending time on other life activities and pursuits.

With regards to adult basic education learners, the majority of the literature available portrays the literacy learner as possessing low levels of self-worth (Beder, 1991). Although as an adult learner, he or she

still brings a rich background of life and work experiences to the classroom (Neely et al (1998).

The causes of low literacy in adults which are most frequently cited are socioeconomic factors, ethnic or racial backgrounds, limited or non-English language skills, and physical, mental, or health conditions (Skinner et al, 2000). One may understand then that adults with limited levels of basic education skills exhibit low levels of self-worth (Beder 1991), often feel isolated and display beliefs of low self-esteem and low self-confidence due to the learners' inability to participate in life to the extent desired (Languille, 2004).

Opportunities for individuals and communities to reflect on their situation and effect change are increased by literacy (NALA, 2009). The adult learner's inspiration to pursue education may be due to a need to advance in a job, a career shift (Neely et al, 1998) or for the development of self. Neely et al (1998) stress that age can also bring about an increased awareness and desire for more knowledge.

As a result of low self-beliefs which may be possessed by the adult basic education learner, some social issues develop.

2.2.2 Social Issues

Nussbaum (2007) highlights the issue of adult literacy statistics as being a reminder of social inequalities and deprivation of capabilities. Literacy is seen as an important social entitlement (Maddox, 2008). Some adult learners experience social isolation due to lack of literacy hence European Union documents refer to the contribution of lifelong learning in the reduction of social exclusion and promotion of equal opportunities (European Commission, 2000). Basic life-skills such as literacy and numeracy are also sought for same purposes. Field (2005), McGivney (2001) and Schuller *et al* (2004) explain that self-confidence in the social world and self-confidence as a learner are linked together in complex ways and are also both linked to prior experiences of learning.

The analysis of the means of providing literacy instruction is therefore of utmost importance as one may ask, how does the adult basic education learner learn?

2.2.3 Adult Learners' Orientation to Learning

Adult learners have a need to learn that which is needed to solve a problem of inadequacy in life (Knowles, 1990). Knowles, (1990) goes on to describe this as a problem centred orientation to learning. For instance, in an effort to meet life's needs, older learners may want to

learn about basic technology and how to use e-mail and the internet (Chaffin and Harlow, 2005).

The nature of learning approaches and the methods of overcoming barriers will be different amongst learners and will depend on the level of comfort among older learners and their ownership of their own learning (Messineo and DeOllos, 2005). As older learners experience needs and interests which learning will satisfy, learners become motivated to learn. The adult learners' typical orientation to learning is life centred and experience is the richest source for adult learning (Brookfield, 1984; Imel, 1998). Lindeman (1926) also states that experience is the adult learners' living textbook. The adult learners' orientation to learning seems to suggest that constructive learning would be advantageous to adults; constructivists emphasise that learners' intentions, experience and cognitive strategies are of primary importance (Reeves and Reeves, 1997).

There is a deep need to be self-directed, and individual differences among people increase with age (Beisgen & Kraitchman, 2003). The author believes that it is then important for older adult learners and the basic education tutors to be aware of the learners' learning levels.

2.3 Learning and Self-Beliefs

Arising from the concept of triadic reciprocity, Bandura (1986) is the implication that teachers have the challenge of improving the academic learning and confidence of students. Applying the social cognitive theory, teachers can work to improve their students' emotional states and correct the negative self-beliefs and habits of thinking (personal factors); improve their academic skills and self-regulatory practices (behaviour); and lastly, change the school and classroom structures that may undermine student success (environmental factors), (Pajares, 2002). It has therefore become essential to examine how computer technology can impact on these mentioned challenges.

Bandura (1986) is of the opinion that the beliefs people have about their abilities and outcomes of their efforts seriously affects their behavioural manner. Assumptions abound that acquiring a stronger learner identity which has been developed from a positive learning experience has a positive role in building the confidence of learners (Tett and Maclachlan, 2007). In agreement, Hammond (2004) states that research on adults returning to learning suggest that adults who failed in school show an increase in confidence from later successful learning experiences.

Dillion-Marable and Valentine (2006) claim that computers have been found to significantly improve certain aspects of instruction which include student enjoyment, privacy

and confidence levels of learners. Due to the mentioned findings, it is recommended that instruction should allow for discoveries to be made by the adult learner while the tutor acts as a guide or facilitator. This will allow for the build-up of learners' confidence and positive self-beliefs.

2.3.1 Self-beliefs and Attainment

Research suggests that people with positive self-views have the potential to overcome obstacles; while on the other hand; people with negative self-conceptions do not reach their full potential (Bong and Clark, 1999, Mahyuddin *et al*, 2006). Mahyuddin *et al* (2006) go on to explain that learners with low self-efficacy believe that a task 'is tough' and this narrows the learners' vision on solution of problems. On the other hand, learners with high efficacy are more relaxed. Due to this, Yukselturk and Bulut (2009) suggest that self-beliefs or self-efficacy of learners may be assessed prior to commencement of a course to assist in identifying learners who are particularly at risk of performing poorly.

A learner's continuance on a task depends on constant reaffirmation of the learner's positive self-beliefs or on the learner's chances of successful completion of the available tasks (Caprara *et al*, 2008).

Success requires not just skills but strong self-belief in one's capabilities to accomplish set goals (Bandura, 1988). People with the same skills may perform, extraordinarily well, poorly or adequately depending on the self-beliefs they possess which may enhance or impair the capabilities of the individual (Bandura, 1988). An individual's self-beliefs also have a strong effect on motivation and consequently on the activities undertaken (Bandura, 1988).

Low self-esteem has been recognised as a barrier for assessing learning (James, 2003) hence raising the learner's confidence to avoid the learner seeing themselves as educational failures will widen education (McGivney, 2001). Ecclestone (2005) acknowledges that some learners need to change their self-image and raise their estimation of their potentials in order to progress. This is especially true with some learners who have been previously put off by formal education. Learners are empowered by learning that which fosters positive feelings about the self. Although McGivney (2005) expresses doubt about the elevation of self-esteem on the impact on education, Ecclestone (2005) asserts that evidence has been found that learners value the self-esteem and confidence acquired from learning.

2.4 Adult Basic Education Learners and Technology

Investigating the effects of technology integration into adult education is imperative as well as the adult learners' reaction to same. Flood (2004) suggests that a learner's emotional response to the learning environment is as important as the instructional method and classroom in learning. Hence the manner with which the adult basic education learner learns and adapts to technology cannot be ignored if technology is to be successfully integrated into adult basic education.

2.5 Adult Basic Education and Technology

Wagner and Kozma (2005) claim that the long term implications for the use of technologies are great both for the delivery of literacy education and for what it means to be literate. This is particularly in a world that has been basically transformed by technology (Wagner and Kozma, 2005). The digital divide though may make accessibility of technology difficult for learners (Gorski, 2003) and this may be due to the adult literacy learner's inability to use the technology (Milheim, 2007). McCain (2002) however argues that some literacy programs already utilise technology in various ways such as drills and practice lessons. Repeated use of computer technology assists in developing computer literacy thus

providing a means for instruction (Askov and Clark, 1991).

Software tools such as spell and grammar checkers may make writing and spelling too easy (Kunz and Tsoukas, 2000) and this may be less motivating for learners. Kunz and Tsoukas (2000) also believe that some adult literacy learners may not like technology due to doubts that computers can assist learning and concerns about technical difficulties and knowledge of use. Lewis (1989) however asserts that faith in technology which exists in the modern mind (Turkle, 1994) can assist learners overcome feelings of inadequacy while learning basic skills. Though taking into consideration that technology is constantly changing (Askov and Clark, 1991), this may be a major concern. Osei (2001) however maintains that some of the advantages of computer technology in adult basic education are that adult learners find it challenging and motivating. Its availability of constant feedback encourages, builds the self-esteem of the learner and serves as a source of communication (Osei, 2001). Jafee (2001) adds that the immediate feedback received while individually learning with computers is extremely helpful to adult learners considering the busy lifestyles of adults returning to learning. Bandura (1988) points out that success motivators and efficacy builders not only raise peoples' self-beliefs in the capabilities possessed but also create situations where people are less likely to fail but achieve success. Failures create self-doubts; due to this, the most effective way of building positive self-beliefs is through success experiences (Bandura, 1988).

These benefits also impact on the learning experience of adult literacy learners and not just on the overall learning experience (Milheim, 2007).

McCain (2002) believes that technology can make up for some of the deficiencies of a poor teacher. Clarke (2002) adds that the technology through the internet also has the potential to reach adults who had poor learning experiences in formal education and are reluctant to return to institutional learning. Milheim (2007) though informs that there is a limited number of websites available for low level adult readers. But some researchers are of the opinion that some websites have now been developed to accommodate adults reading at grades five to seven (Irish 4th class to 6th class).

Computer technology assists in boosting the confidence and empowering the adult basic skills learner thus enabling the adult learner to take charge of his or her own life (Osei, 2001). Askov and Clarke (1991) highlight individualisation of instruction as another advantage of computer technology in education. Although Clarke (1983) cautions that achievement may not be as a result of the medium of instruction but from content and the adoption of computer technology by the learner. Rogers (2003) though advises that the adoption of an innovation depends on relative advantage, compatibility, complexity and ease of experimentation. The adopter's decision to adopt the innovation depends on the degree to which the innovation possesses the mentioned characteristics (Berger, 2005).

Despite these findings, Bankay and Woloshyn (1998) advice that adults need to have the conviction that computer technology provides immediate feedback, privacy and the elimination of social stigma.

2.4.2 Adult Basic Education Learner, Technology and Privacy

Most adult learners prefer to hide their academic deficiencies (Jaffee, 2001, and Osei, 2001).

Turner (1993) points out that using computers or multimedia to learn basic skills affords the adult learner some privacy which is not present in the traditional learning environment. The learner is thus protected from discrimination and embarrassment as the adult basic education learner prefers to hide perceived limitations (Turner 1993). Milheim (2007) agrees that technology reduces the embarrassment and lack of self-confidence caused by the low level of education. This protection from embarrassment may allow to some degree a positive growth in learners' beliefs in their abilities as the learners feel free to explore without the fear of embarrassment. Askov and Clark (1991); Berger (2005); Milheim (2007), agree that computers offer the adult basic education learners some privacy, individualisation and control (Bialo and Sivin-Kachala, 1996). Kunz and Tsoukalas (2000) are of the opinion that in addition to the private feedback which computers provide, the self-esteem of the learner also builds up.

Acceptance and the impact technology can have on learning also depends to a large extent, on the gender and personality of the learner.

2.4.1 Male and Female Learners, Self-Beliefs and Technology

Some researchers view one's gender as mapping one's entire life, internally and externally (Weiss, 2001), hence discussions on gender issues in this paper seem inevitable. Bozionelos (2004) also states that gender seems to mediate effects of socio-economic background when it comes to computer use.

Wender (2004) believes that women are generally more known to have lower self-beliefs than men when it comes to courses requiring qualitative skills such as technology. Hackett (1995) explains that women's low numbers in technical problem solving courses can be traced back to women's low self-efficacy in these areas. It is no surprise then that claims abound that males have shown more positive attitudes about computers than female learners (Contreras, 2004). Broos (2005) offers an explanation that women seem to need more time to appreciate a new medium and be positive about the use of information technology. This might explain why men have increased access and use of computers than women as observed by Losh (2004). Ong and Lai (2006) believe however that the positive attitude for men may be

influenced by the perception of the use of technology. In contrast, women seem to be more influenced by their lower perceptions of computer self-efficacy and user friendliness (Ong and Lai, 2006).

Huyer (2003) discovered that computer literacy courses assisted female students with issues of self-confidence and self-esteem by providing the ability for self-belief in the learners' capability to handle further courses. In addition to confidence boost, Wender (2004) also believes that giving women the opportunity to engage in successful technical tasks will contribute to the decline of the traditional male stereotype connected with the perception of technology.

Wang et al (2009) find that the social reasons for use of information technology are more important for men than for women.

Although there seems to exist differences between the manner with which male and female learners accept and learn with technology, Yukselturk and Bulut (2009) advise that male and female learners should not be treated differently. Yukselturk and Bulut (2009) however believe that recommendations about the different behaviours may contribute to enhancing the achievement of some learners. Brookfield (1995) however comments that recent work on gender criticises the use of self-directed learning (which is encouraged by technology) as standing for patriarchy, separation and division.

The issues relating to gender and technology are complex (Vandenbroeck et al, 2008), and therefore, will not be dealt with in detail within the scope of this paper.

2.4.3 Personality and Educational Technology

Brookfield (1995) stresses the significance that personality plays on learning.

During a research involving an online learning environment, Yukselturk and Bulut (2009), found that students with higher anxiety may have had thoughts which hindered the learners' study habit or cognitive activity especially with regard to assessment.

With regard to introverts, Liang and McQueen (1999) explain that with more confidence, introverts are more comfortable communicating with tutors and peers through e-mail interactive learning.

2.4.4 Self-Directed / Constructivist Learning

As noted earlier in this paper, Askov and Clark (1991); Berger (2005); Milheim (2007) all state that computers offer the basic skills learner some privacy and private feedback (Kunz and Tsoukalas, 2000). This implies then

that computer technology allows for self-directed learning.

Zimmerman (1990) agrees that technology promotes self-directed learning and also identifies one of the features of self-directed learning as self-oriented feedback in which learners monitor the effectiveness of their learning and react to this feedback in various ways. Zimmerman (1990) further explains that some changes in self-perceptions are some of the ways in which learners react to self-directed learning.

The use of ICT in adult education brings about a shift towards student-centred learning (Harvey & Knight, 1996); the teacher performs the role of a skilled learning facilitator rather than that of an expert instructor (Willem et al, 2006; Berger, 2005; and Jaffee, 2001). Some researchers however view this shift as a limitation as Huett et al (2008) highlights that a strong sense of motivation and confidence is required for student centred independent learning. Simonson (2000) argue that text, graphics and audio-video materials present in technology not only enhance learning but also create interactivities which enable learners to continue their learning in a flexible and convenient way.

2.4.5 Technology and Motivation

Motivation is one of the most important concerns in how and why people learn (Keller, 1979; Efklides *et al*, 2001). Some may view ICT as just another teaching tool; while others may view ICT as important elements of learning (Meller *et al*, 2004).

Claims abound that using technology effectively in classrooms has enabled teachers to be more successful and assists students in learning what they need to know to be effective (Means *et al*, 1993). Song and Keller (2001) are however of the opinion that technology in learning has relied on the assumed motivation present in computer assisted instruction by digital media designers. Song and Keller (2001) go on to advise that the novelty nature of technology should no longer be relied upon as a stimulant for learning, as computers in education is on the increase.

2.4.6 Technology, Education and Social Issues

Previously noted in this paper is the effect of lack of literacy in the social world. It is thus necessary to discuss the impact of computers regarding same in adult basic education.

Willem *et al* (2006) claim that ICT has promoted the need to develop competences which are essential as adult citizens of the new information, communication and knowledge society. Willem *et al* (2006) further explain that active participation as citizens depends on the level of digital literacy skills from which the use of new technologies assist in achieving. ICT also provides more effectiveness through the access, use, distribution and processing of information (Willem *et al*, 2006). However, Roy (2004) argues that although technology has huge potential for providing information access and re-skilling for adults, its uneven access worldwide is an issue as 80 per cent of the world's population have no access to phones or the internet. Roy (2004) goes on to state that technology aided learning being largely individual learner oriented has made learning less of a social activity which has serious implications for socialisation.

2.4.7 Technology, Education and Social Interactions

Vygotsky (1987), a social constructivist, stresses the importance and the role that social interactions with teachers and other learners play on learning.

Ginsburg, (1998) comments that although individualised learning can be viewed as a benefit, it can also be

considered a limitation; team skills are increasingly on demand in the work place as well as collaborative activities, and communication skills which the isolated learning environment does not assist in developing. McCain (2002) however argues that the internet provides learners with visual exposure and new ways for learners to relate to information. Berger (2005) and Artiss et al (2001) agree with this and comment that as a result, learners may collaborate and share information with each other.

2.5 Technology and Learning

As earlier discussed; instructional technology provides for immediate feedback. Laurillard (2002) emphasised the importance of feedback by stating that action without feedback is unproductive for learners. Feedback as well as providing a measure of the learner's suitability for further education gives the learner the confidence to take the next step. Race (1995) however argues that there is the danger that the value of the feedback provided will be diminished by learners' reactions to scores or grades.

Further claims exist with regard to the integration of computer into the classroom including improved performance, attitude, skill mastery and increased student engagement. Snyder et al (2005) thus advise that adult literacy programmes should incorporate digital

literacies; as basic confidence with information and communication is required along with the continuous acquisition of new skills. Another issue which may be perceived as a drawback to technology in adult basic education is highlighted by Huett *et al* (2008); student centred independent learning requires a large amount of motivation and confidence from the learner. Lee (2000) agrees that the shift in instructor-centred to learner centred learning requires learners to be motivated and self-directed. Selwyn (2000) however argues that the optimism shown by some educational technology researchers is a limitation to research into technology in education. Selwyn (2000) further claims that this optimism in the extreme form may tend towards an utopian outlook on technology.

2.5.1 Technology and Effective Learning

Using educational technology for drill and practice of basic skills, which is the most common use of technology in adult education (Kosakowski, 1998) can be highly effective as evident from a large body of data and a history of use (Kulik, 1994). To properly focus exercises and activities, Messineo and DeOllos (2005) stress the importance of first helping learners identify their attitudes about technology as well as their skills and weaknesses. Skinner *et al* (2000) add that the effect of technology on student achievement in literacy

programmes is determined by the way a teacher approaches and facilitates its use. Studies reveal that students who feel more successful are more motivated to learn (Bialo and Sivin-Kachala, 1996); this may arise from renewed confidence in the learners' own capabilities. Jaffee (2001) is however of the opinion that the issue of time management, which faces the adult basic skills learner is usually ignored. Jaffee (2001) argues that adults try to balance family, work and learning which may not allow sufficient time for adults to also try to balance learning how to learn with technology.

Messineo and DeOllos (2005) recommend frequent comfortable interactions with familiar technology to assist in reducing learners' anxiety but Skinner et al (2000) advises that instructional technology in adult basic education should not take the place of credible teaching but instead be used as an aid to provide reinforcement and enrichment of specific skills which have already been introduced by the teacher. Skinner et al (2000) also view the use of technologies such as word processing, spell checkers, screen review systems and optical character recognition as by-pass methods of teaching and as being valuable aids but do not remedy the overall literacy problem or underlying learning difficulties. Partly owing to maturity, learners have positive experiences in the technology supplemented classroom (Adria and Rose, 2004) and appreciate a situation where computer technology is used as a means to supplement traditional classroom teaching. Messineo and DeOllos (2005) however assert that without the adult learners' comfortable frequent interactions with

technology, uncomfortable learners' may perform less well. And as a learner performs poorly, the learners' beliefs in his or her abilities may decrease. The teachers' assistance in guiding learners to be independent is essential. The outcomes for learners must be measured according to their individual goals, preferences, and needs.

Jaffee (2001) also stresses further advantages of learning with technology as providing the learner with more options to learn with while trying to develop literacy skills. Not all learners increase their learning through textbooks. Gardner (2003) also advises that a fuller appreciation of humans occur when we take into account the various intelligences. Technology introduces the use of videos and computer software and as such, various types of learners are catered for.

2.6 Technology and Special Needs

One of the most significant causes of the inability to master reading and writing skills is learning disabilities (Skinner *et al*, 2000). Due to this, a notable percentage of learners with intellectual disabilities still struggle with learning basic skills. Some however are reluctant to approach formal institutions due to the lack of capacity to deliver instruction in a manner that would encourage and interest the learner.

Research shows that literacy skills create opportunities for independent living, and provide a sense of accomplishment and improved self-confidence in learners with intellectual disabilities (Van Kraayenoord 1994). Disadvantaged students must then be considered prior to using technology in the classroom; the type of technologies, how they are used and students' access are important (Natriello, 2001). Skinner *et al* (2000) claim that new avenues can be opened to learners with disabilities through the use of computers and other technologies.

One of the challenges for educators of adult basic education is to develop programmes whereby the curriculum and instructional methods allow students with specific learning disabilities to achieve alongside other classmates. Provision for achievement can be made by adopting materials and methods that focus on students' areas of weaknesses while allowing the learners to demonstrate unique strengths (Skinner *et al*, 2000).

Snyder *et al* (2005) highlights that technology is often discussed enthusiastically in education planning, it is seen to assist in overcoming certain kinds of disability. This could assist in empowering the learner and may promote the development of positive self-beliefs.

2.7 Technology and Self-Beliefs

Huyer (2003) claims that courses in basic computer skills assisted in increasing learners' knowledge and increasing the learners' self-confidence and self esteem. This was particularly true for female learners, the self-confidence of female students improved as a result of their access to computers. Watson (2001) agrees that students exhibited attributes such as self-confidence while exploring the internet. Jaffee (2001) however argues that adult basic education learners do not possess the self-confidence required to improve literacy skills through the use of technology. Merrifield et al (1997) support this argument with studies which reveal that adults lacking basic education possess a fear of technology and are uncomfortable with its use due to lack of previous experience and the absence of self-confidence. Watson (2001) however insists that students expressed openness and independence while using the internet and not just for classroom activities. Berger (2001) agrees that the internet in particular, empowers learners by assisting the learner to take ownership of his or her learning. Controlling the computer seems to empower learners with low literacy skills who prior to returning to learning felt little control over their own lives (Askov and Clark, 1991).

Bialo and Sivin-Kachala (1996) however support the argument that using technology to learn enables learners to control the learning pace hence increasing self-confidence and self-esteem across a variety of courses.

Bowers and Bowers (1996), Di et al (2000) and Kinzie et al (1994) argue that the increased use of computers may disadvantage learners who lack technical skills, increase anxiety and may perhaps reduce the learners' sense of self-belief and impact on academic success. Spinelli (2001) however asserts that as students become more exposed to computers in the classroom, the comfort level improves and the students express the desire to use computer technology in the future. Cauley et al (2009) discovered from test results and learners' self reports of computer knowledge that an increase in enjoyment and confidence are positively related to the learners' acquired basic computer skills. Horton and Freire (1990) thus advise that the educator's role is to encourage learners to take control of their own lives through learning. Since low self-belief is obvious in a number of adult learners (Beder, 1991), the sense of accomplishment gained from developing new skills while learning with computers may boost self-confidence and pave a way for further education due to the motivation to learn (Jaffee, 2001).

Findings from a research conducted by Tett and Maclachlan (2007) show that an increase in self-confidence intertwines with enhanced social and communicative abilities and changes in learner identity. Wallis (2004) also observed that students developed increased self-esteem from learning with technology; Hammond (2004) supports this argument with discoveries which suggest that confidence developed through learning is usually accompanied by positive personal growth and openness to new ideas. Ginsburg et al, (2000) agree that the ICT

skills acquired by learners are not insignificant but instil a new air of confidence as students realise that what is being learned is yet to even be mastered by some more educated people.

Cauley et al (2009) advise that with older adults, increasing the sense of self by learning basic computer skills can improve cognition, promote communication and boost confidence. Lansdale (2002) observes that a nursing home resident developed confidence through the acquisition of computer skills hence able to take charge of some personal needs.

With computer technology, learners can read and review content as long as and as often as necessary and can engage in drills and practice (Qing and Edmonds, 2005). Bandura (1988) emphasises the importance of practice in learning and beliefs. Bandura (1988) states that people must experience success by using what has been learned to believe in themselves and in the value of the learned skills.

2.8 Is Self-belief Important?

Pajares (1996) and Schunk (1995) claim that from research, findings show that self-efficacy has an impact on academic achievement, motivation and learning. Self-perceptions can assist in determining what people do with the knowledge and skills they possess (Bandura, 1986). Ecclestone (2005) agrees to this and stresses that it is

legitimate for education providers to be concerned about learners' self-esteem, emotional well being and concerns about social exclusion.

The author is of the opinion that although self-beliefs do not necessarily affect the real world, they affect our actions and consequently the results of those actions.

2.9 Design of Adult Basic Education Software Program

2.9.1 Software Design and the Adult Learner

The importance of the mode and delivery of instruction to adult basic education learners has been earlier highlighted. The delivery of instruction is especially important considering the unique nature of the adult basic education learners.

Although there are software programs available for adult literacy (Jaffee, 2001), there still exists deficiencies such as high costs, lack of focus on adults and adults prior experiences; lack of user friendly software and lack of development on appropriate content (Anderson, 1996).

Most of the software available is designed for children and not suitable for adults (Jaffee, 2001). Jaffee (2001) goes on to advise that adults have rich, varied experiences and needs which software development should take into consideration. Hannover (1998) concurs with this school of thought that real life experiences in the subject area are influential factors in learning. More importantly, experiences which are relevant to adults are essential for the learning of basic skills (Simms and Knowlton, 2008). Results from research also show that adult learners ranked as most important; setting of learning outcomes based on real life needs, self direction of learning and personal relevance in what is being learned (Knowles, 1972). The needs of the learners should be taken into consideration hence the National Adult Literacy Agency [NALA] (1999) stresses the importance of all good literacy work starting with the needs of the individual. NALA (1999) go on to advice that good literacy work should be concerned with building self esteem and confidence of learners.

Computers have been described as helpful in developing information skills for adult literacy and basic education students because they provide learners with privacy, feedback, individualisation, control, and flexibility (Berger, 2001). Designers of digital media content need to take advantage of these characteristics and also provide motivational and confidence building tasks in the designed instruction. This assists learners who require large amounts of motivation and confidence. As discussed

earlier, lack of literacy which may be impairment to the use of technology should be taken into consideration. The use of sounds and images in digital media may assist in combating this problem.

2.9.2 Software Design and Learners' Self-beliefs

Software developers need to ensure the availability of appropriate steps in instructional material to enhance the self-beliefs of adult basic education learners.

Appropriate activities and feedback which can enhance student's self-beliefs may assist learners to successfully complete their tasks and hence the course of study (Yukselturk and Bulut, 2009).

Instructional programs for literacy skills should use simple, easy-to-use writing software which allow learners to concentrate on learning without going through layers of user interface. This can cause confusion and weaken learner's self-confidence (Skinner et al, 2000). From the author's point of view, software for adult learners should provide for more control by the adult with an aim to building the self-confidence of the learner. The issue of control was also highlighted by Beger (2001) by describing computers as helpful in developing information skills for adult literacy and basic education learners. This is due to the ability of the computer to provide

learners with privacy, feedback, individualisation, control, and flexibility.

Bandura (1986) states that the most important source of self-efficacy is successful performance. It is thus advisable for activities to be arranged in increasing order of complexity as this enables learners to be more successful (Gagné, 1985). Experiencing success on a task increases the self-efficacy of the particular task. It is also important for digital media material to be easy to use and should not make the learner tense or anxious as high emotional arousal tends to affect self-efficacy beliefs (Busch, 1995).

2.10 Technology Integration and Adult Basic Education

Lack of appropriate integration of computers into the learning of basic skills may result in ineffective learning irrespective of the software design.

The skill and attitude of the teacher determines the effectiveness of technology integration in the curriculum (Bitner and Bitner, 2002). This school of thought is in agreement with Fullan (1990), a change theory expert, who states that educational change primarily depends on the simple and complex idea of what teachers do and think.

Bitner and Bitner (2002) further explain that teachers must be considered on issues regarding technology

integration into the classroom. Findings indicate that the practice of using technology in the classrooms depends on adequate access to sustainable resources and the development of technology as a primary concern within the school (Deaney and Hennessey, 2007). Attewell (2001) however points out that simply having access to computers does not guarantee success.

Jaffee (2001) highlights a limitation to the integration of technology into adult education as the unavailability of enough technology for use and lack of time to first train adult learners. Most adult basic education learners do not possess computer skills. The lack of enough technology maybe as a result of lack of adequate financial support which is evident in some adult literacy programmes as the use of technology in literacy is not a high priority for educators (Jaffee, 2001). Millar and Falk (2000) support the argument that information technology can empower learners but however insist on the need for students to first possess literacy skills.

Many adults without basic education do not use technology at the work place and cannot access technology instruction at the adult literacy programs. This makes it difficult for learners to move beyond the level of knowledge from what is learned on their own at the home front (Jaffee, 2001). Access to technology in adult basic education will encourage further practice, familiarity and enhance the comfort level of the learner.

2.11 Technology Integration and Adult Basic Educators

There is the need for adult basic educators to understand the new contemporary communication so as to produce learners who can contribute actively, responsibly and critically to the changing society (Snyder *et al*, 2005). Messineo and DeOllos (2005) advise that skills surveys should be conducted by instructors early in the term to uncover students' feelings toward computers so as to assist in increasing comfort levels and knowledge of learners which is geared towards building self-confidence.

Snyder *et al* (2005) advise that adult literacy educators need broader technology curriculum than what is currently available. Traditional literacy prevents the development of learning environments and delivery strategies to provide integrated programs encircling all areas of literacy. Adult basic education learners need technology for lifeskills such as online banking and sourcing information on the internet.

Educators of adult basic education need to take into consideration self-beliefs enhancing strategies in the design, development and mode of delivery of instruction.

Adequate care needs to be taken to ensure that learners who may be considered as minority are not disadvantaged by the institution's use of technology (Messineo and

DeOllos, 2005). Being aware of the adult learners' varied experiences will be beneficial to educators (Knowles, 1990 and Messineo and DeOllos, 2005).

2.12 Summary

Success requires firm self-belief in an individual's capabilities. These self-beliefs may impair or enhance the achievement of set goals. Since the adult basic education learner may possess low levels of self-beliefs, it is important that instruction particularly through the medium of technology promotes these beliefs by incorporating the learners' wealth of experience which provides a rich resource for learning. Provision of instruction which allow for successful completion of tasks and the presentation of instruction in a hierarchical order promotes positive self-beliefs in learners' capabilities.

The uniqueness of the adult basic skills learner makes it imperative that teachers take into consideration the comfort levels of learners prior to the integration of computers into the classroom. The acceptance of computers by the adult learner should be ascertained and supported in various ways such as through training prior to commencement of learning with the computer. This assists in controlling the anxiety of the learner which may negatively impact on the learners' self-beliefs. Lack of adequate time and funding may though present an

issue in the training of learners prior to learning with technology.

Computer technology provides for privacy, individualisation, control and private feedback; all of which assists in empowering the adult basic education learner. Digital media developers should however ensure adequate use of sound and images to assist learners, as lack of literacy may be a hindrance to the use of computer technology for learning.

It is important that the integration of technology supports classroom instruction and not take the place of credible teaching. Attention should be paid to the manner with which male and female students learn as female learners may possess less self-efficacy beliefs than their male counterparts when it comes to the use of technology.

Chapter 3 Methodology

3.1 Methodology

The method adopted for this research is geared towards collecting information on the impact of technology on the self-beliefs of adult basic education learners and may assist in highlighting areas of possible hypothesis which may open up avenues for further research. The following questions formed the focus of the research methodology:

- Do adult basic education learners enjoy learning with technology?
- Does technology impact positively on the self-beliefs of adult basic education learners with regards to success in learning?
- Does technology help adult basic education learners believe better in their abilities and capabilities?
- Are adult basic education learners empowered by technology?

3.1.1 Research Approach

Research approaches are varied; the approach adopted by the researcher depends on the type of research, research

topic and other variables. Research approaches include the *case study*, a strategy which attempts to examine a contemporary phenomenon in its real life context (Yin, 1981); *action research*, reflection in an immediate problematic situation and action intervention (Avison et al, 1999); *ethnographic*, the study of people in naturally occurring settings or fields by various methods of data collection with the researcher participating (Bell, 2005); *narrative stories approach*, involving an informant speaking in a story form; *descriptive*, where researcher gathers, organizes and describes events (Association for Educational Communications and Technology [AECT], 2001) without trying to manipulate data; and the *experimental approach* (Henrichsen et al, 1997), which requires an experiment to be carried against a control group.

Three of these approaches were however considered for this research; the experimental approach, the descriptive research approach and stories approach.

3.1.1a The Experimental Approach

The experimental approach requires the control group and the experiment (Bell, 2005).

This approach to the research measures learners' self-beliefs prior to a period of learning with technology and again at the end of the period. Results are compared for significant improvement in self-belief indicators. The measurements are carried out using questionnaires and

interviews of the same group of learners before commencement of learning with selected software in the areas of basic mathematics, reading and writing, and computer literacy. The opinions and feelings of same group of learners are to be gathered on completion of learning with digital media over a three month period. The results are expressed on a numerical scale with higher values indicating higher levels of self-beliefs. The aggregate scores for the same group of learners before and after the learning period are compared for statistical analysis.

Another approach is to use two groups of learners, one exposed to learning with technology and a control group without access to technology. The two groups would start learning at the same time and their opinions regarding their ability to learn the subjects and self-beliefs are assessed at the same time.

An advantage of this approach is that it provides numerical scores of the before and after conditions enabling more precise comparison and statistical analysis. Each question can be rated on a scale of 1 - 5 and aggregated to produce a composite score. Such numerical scores lead to straight forward comparisons. A disadvantage is that the groups of adult basic education learners are in small numbers in the various adult education centres across the county especially in basic mathematics and reading and writing. There is also a high drop-out rate which follows that the same learners are not guaranteed to be present during the experimental period. As Wilson (1979) points out, an experiment to

study the causes of social phenomena requires large numbers of people, often for long periods; this limits the usefulness of the experimental method for this research. Large groups of people help to control the many variations and ambiguities involved in human behaviour (Bell, 2005).

3.1.1b Narrative Stories

Story is an ancient and human method, the human sees the present rising out of the past, heading into a future and understands reality in narrative form (Novack, 1975). Narrative story is helpful and appropriate in portraying intensely individual experiences (Gray, 1998).

A large amount of courage and determination is needed for an adult with low literacy and numeracy skills to commence a literacy course. A journey exists in the life of every learner, but the journey of the adult learner with low literacy skills commencing a literacy program is rich with experiences and feelings which only the learner can portray thus the reason for the consideration of this approach.

A disadvantage to this approach is the risk and ethical issues involved. The storyteller may decide that he or she may have revealed much more of their feelings and may choose not to reveal any further (Gray, 1998). Another disadvantage of this approach is that it is time consuming as the informant has to recount experiences in his own way (Gray, 1998) and at his own pace.

Due to these disadvantages, this method was rejected. Stories regarding learners' beliefs and feelings are deep and learners' may choose to cease sharing information at any stage. Another reason being for the rejection of this approach being that since the researcher is not a trained counselor, feelings may be difficult to manage.

3.1.1c The Descriptive Approach

This approach involves gathering data that describe events, these data are organised and explained using charts and descriptive statistics (AECT, 2001). Descriptive research is conducted without manipulation of the research context and describes data from results gathered.

Two categories of learners are sampled, the first category learning with technology and the second learning basic skills without the use of computer technology. Quantitative and qualitative methods; questionnaires, interviews and focus groups are used to gather information on learners' self-beliefs from both groups. The research methods uncover issues such as the level of self-beliefs possessed by adult basic education learners, whether or not learners have been empowered by technology, whether or not learners now believe they are more capable to learn and to participate in their local community from learning with computer technology and whether learners believe they are more confident about

their abilities and capabilities a result of learning with the computer.

One of the advantages of this approach is that drop-out rates do not affect the measurements since each learner is measured once without the need for measurement prior to learning with technology and on completion of learning with technology. Small groups of adult basic education learners present in the centres can be sampled without the need for having a large number present in one location at any given time. A disadvantage of this approach is that comparisons cannot be made with the same group of learners.

3.1.2 The Method Adopted

Due to the high drop-out rate among adult basic education learners and the presence of small groups of learners at each of the centres, the descriptive approach was adopted for this research. The descriptive approach is more advantageous to this research due to its method of gathering information without manipulation of the research context such as the experimental approach. The descriptive approach has also been especially considered as educational research and experiences may contain variables which cannot be realistically controlled (Henrichsen et al, 1997) as may arise with the experimental approach and narrative stories approach.

3.1.3 Research Methodology

The impact of technology on the self-beliefs of adult basic education learners was studied in four adult education centres in the County Donegal Vocational Education Committee (Co. Donegal VEC). 85 adult basic education learners in various groups and three adult basic education tutors were targeted for the research.

3.1.3a Qualitative and Quantitative Methodology

The research analysis method adopted combines both qualitative and quantitative methods. This is in accordance with Weinholtz et al (1995) who advice that as a hedge against obtaining erroneous results, quantitative research should be supplemented by qualitative methods. Jick (1979) also encourages the use of both qualitative and quantitative methods for research and advises that both methods should not be viewed as rival camps but as complementary. Miles and Huberman (1994) emphasise the importance of both methods of research by stating that we need numbers and words to understand the world. Using both methods of research will provide richer detail, enable collaboration or confirmation of each other and provide fresh insight (Miles and Huberman, 1994).

3.1.3b Triangulation

The combination of multiple methodologies for the study of the same phenomenon, triangulation (Denzin, 1978), has been used for obtaining information. This arises from the theory that collection of various kinds of data can improve the accuracy of a study (Jick, 1979). Completion of questionnaires, conduction of interviews with learners, focus groups and conducting of interviews with tutors are the various methods adopted for the study.

3.1.4 Selection of Participants

In accordance with ethical considerations, permission was sought and obtained from an Adult Education Officer of Co. Donegal VEC for survey to be carried out within the education centres. The participants consisted groups of adult learners from four centres in the county. Groups which were made up of adult learners possessing low literacy, numeracy and computer literacy skills were selected. Although during selection of groups, only groups with low levels of basic education were chosen, participants were not afterwards selected on any criteria as individual groups consist of a mixed group of learners and further selection would have impacted significantly on the number of participants. The total number of learners selected is 85; studying basic mathematics, reading and writing at and computer literacy at FETAC Level 3. A mixed group of learners comprising employed, unemployed, males, females, younger adults and older

adults formed the participating groups. The groups were personally informed of the purpose of the research by the author and participation was on a voluntarily basis.

3.1.5 Questionnaires

The use of questionnaires which is one of the survey methods for this research is an indirect way of gathering information (Maher and Kur, 1983). Foddy (1995) describes questions as forming the foundation stones for most contemporary social science and the asking of questions is a cost efficient way of gathering information about beliefs, behaviour and experiences. Another advantage of questionnaires which was considered by the author is its ability to sample a larger number of people and gather information regarding beliefs of respondents (Maher and Kur, 1983). There however exist some disadvantages with questionnaires. The production of a very good questionnaire is a difficult task as Oppenheim (1992) comments that one should not assume that anyone with common sense and who can write plain English can design a questionnaire.

Return rate of questionnaires may present a problem as the researcher has no direct control over questionnaires being returned especially if questionnaires are not directly presented to respondents by the researcher.

The researcher has however chosen to adopt the use of questionnaires as one of the research instruments due to its ability to cover a larger number of respondents.

3.1.5a Design

The questionnaires have been designed as research instruments to assist in gathering information on whether or not technology assists adult learners to believe better in their abilities and whether or not adult basic education learners are more confident and empowered by technology. The questionnaires also gather data on gender, age group, previous computer knowledge, employment status and ethnicity of respondents.

Simplicity and directedness of language was a major factor in the design of the questionnaires since respondents are basic education learners.

Questionnaires were piloted with two groups (for Questionnaire 1 and Questionnaire 2) on three occasions prior to arriving at a final copy. The questionnaires for two different types of survey have been originally designed by the author employing open and closed questions to measure the level to which the learners believe in their abilities and capabilities. The level to which computer technology has affected or improved their beliefs in themselves and their capabilities were sought from the questions. For Questionnaire 2, only one open question for learners' comments was provided. This

is due to the difficulty encountered by some participants during the completion of Questionnaires 1.

Questionnaires have been designed in the Likert scale style since the goal of the scale is to measure the intensity of feelings in the specific area (Bryman, 2005). Five response options are used as learners may be confused with more options to choose from. The author is aware that self-beliefs involve inner feelings and as such the open questions encourage respondents to provide more information.

Open questions have been described as possessing the ability to provide valuable information and aid in decisions (Yamanishi and Li, 2002). One of the limitations to the open questions is the length time needed for providing answers to questions and also the assumption that learners can express themselves adequately in writing (Maher and Kur, 1983). The author however chose this option to create the possibility for learners to further express themselves irrespective of whether the expressions are poorly written or grammatically incorrect. Open ended questions also aid in the comparison of various learners' views and serves as checks for the structured questions (Maher and Kur, 1983).

Precision of questions was an important consideration in the questionnaire design as advised by Bell (2005). Statement style questions were used for Questionnaire 2 because of the directedness and precision needed. However, in order not to lead respondents, the

questionnaire advises the respondents to freely choose answers from 'strongly disagree' to 'strongly agree' as the case may be.

3.1.5c Questionnaire Distribution

To ensure a high return rate of questionnaires, the author personally distributed 65% of the questionnaires while 30 were posted out to two adult education centres. To reduce erroneous results as much as possible, learners' reading ability and understanding of questions was also a consideration in the author's decision to personally distribute a large number of questionnaires. This allowed for verbal explanation of research purpose, step by step reading out of questions and available answer choices to learners. Although this was a more time consuming and cumbersome approach, it was however more rewarding as the concern of whether or not learners comprehended questions was to a large extent eliminated.

A total of 79 questionnaires were returned out of the 85 questionnaires distributed.

3.1.5b Questionnaire Analysis

Microsoft Office Excel 2007 has been chosen as a means for presenting, sorting and analyzing data. This is due to its ability to calculate and produce accurate results, its ease of access and the author's knowledge of the software.

Answers to closed questions have been allocated scores as follows:

Questionnaire 1		Questionnaire 2	
I strongly agree	5	I strongly believe	5
I agree	4	I believe	4
I neither agree nor disagree	3	I am not sure	3
I disagree	2	I do not believe	2
I strongly disagree	1	I strongly do not believe	1

Table 1 - Scoring for Questionnaire1 and Questionnaire 2

Open questions have been analysed, described and used as a back up to results from structured questions. Data results are presented with the use of spreadsheet, charts and frequency distribution tables for the purpose of obtaining a clear picture and aid in the analysis and description of data.

3.1.6 Data Analysis

On inspection of the data in spreadsheets, it was observed that Respondent 26 omitted an question 5, Questionnaire 1, thus resulting in a missing data point.

This was corrected by the use of the `"=round()"` function" as shown below:

```
Mean, Q5 all respondents      =round
                               (average(I5:I29,I31:
                               I44),0)
```

and

Mean of scores, Respondent 26 = round
(average(G30:H30,J30
:O30),0)

Questions have been grouped to form constructs where the self-beliefs of learners are a function of these constructs.

3.1.6a Questionnaire Constructs

Developing constructs enable smaller variables to be usefully grouped as themes. This provides for issues which may be difficult or impossible to evaluate directly to be explored by using simpler variables. The constructs developed from both questionnaires 1 and 2 are presented below:

Questionnaire 1 Constructs:

- Construct 1: Learners' believes regarding abilities on the course
- Construct 2: Learners' believes regarding abilities and capabilities life

Questionnaire 2 Constructs:

- Construct 1: Overall Learners' Attitudes to Learning with Computers
- Construct 2: Overall Learners' Self-beliefs Regarding Success at Learning with Computers
- Construct 3: Learners' Overall Self-beliefs in Relation to Learning with Computers and Personal Life
- Construct 4: Learners' Overall Self-beliefs

3.1.6b Constructs and Correlation Coefficients

To ensure that suitable questions have been grouped, exploration of the constructs was carried out as a check for correctness by calculating the correlation coefficients between each of the constructs. Correlation coefficient of "0" indicates no relationship; "-1" indicates a negative correlation and "1" indicates a strong positive correlation between the variables.

Questionnaire 1

Inter Item Correlation Coefficients-Construct 1	
Q1- Q2	0.62
Inter Item Correlation Coefficients-Construct 2	
Q3 - Q4	0.62
Q3 - Q5	0.73
Q3 - Q6	0.53
Q3 - Q7	0.44
Average	0.58

Table 2 - Correlation Coefficients Questionnaire 1

Questionnaire 2

Inter Item Correlation Coefficients-Construct 1	
Q1 to Q2	0.62
Inter Item Correlation Coefficients-Construct 2	
Q3 to Q4	0.64
Q3 to Q5	0.61
Q3 to Q6	0.56
Q3 to Q7	0.59
Q4 to Q5	0.77
Q4 to Q6	0.64
Q4 to Q7	0.55
Q5 to Q6	0.53
Q5 to Q7	0.41
Q6 to Q7	0.78
Average	0.61
Inter Item Correlation Coefficients-Construct 3	
Q8 to Q9	0.62
Q8 to Q10	0.58
Q8 to Q11	0.65
Q9 to Q10	0.65
Q9 to Q11	0.27
Q10 to Q11	0.30
Average	0.51

Table 3 - Correlation Coefficients Questionnaire 2

All correlations are positive which indicates that the appropriate variables have been grouped together.

3.1.7 Interviews

Interviews are probably the most widely used qualitative research method because of the involvement of talking which is natural (Griffie, 2005). There have been some criticisms about the lack of clear concepts, about the interpretation of interviews and survey questions. Respondents interviewed may not be able to say what they think, may not be able to state their opinions in a clear way or may be unwilling to discuss what they know (Flinders, 1997). Despite these criticisms, the author has chosen to adopt this method of survey as a check and follow up to the questionnaires. Interviews create for face to face contact thereby making it possible to observe body language and listen directly to the participants. Another purpose for the use of interviews being to assist in discovering and hearing the lived experiences from the participants' perspective which was identified by Van Manen (1990) as one of the advantages of interviews.

3.1.7a Interview Technique

General interview guide approach was the preferred choice over the standardised open-ended type of interview; closed fixed-response interviews; and informal

conversational interview. The general interview guide ensures that the same areas of information are gathered with freedom to accommodate learners' views (Turner, 2010; McNamara, 2010). This approach is aimed towards creating a relaxed atmosphere thereby allowing learners to discuss their inner feelings and beliefs.

3.1.7b Interview Selection

The participants originally selected for interview consisted of five males and five females from ages 20 to 55 and three adult basic skills tutors. However, due to time constraints, four adult basic education learners; and two adult basic education tutors were interviewed. The learners' socio economic and ethnic backgrounds were taken into consideration. Interviewing the tutors assisted in gathering information through tutors' observations and perceptions due to the frequent direct contact present with the learners.

Learners are studying basic education with computer technology, interviews are designed and geared towards uncovering learners' beliefs about themselves and their capabilities from learning with the computer. The impact technology has had on their confidence and attitude to learning with computers and self-beliefs in life as a whole.

3.1.7c Recording of Interviews

Voice recording of interviews was considered as a method of capturing discussions. Voice recorded interviews makes it possible for the researcher to maintain eye contact with respondent and creates for the possibility of playback of recorded data. A disadvantage being that not everyone is comfortable with their statements being recorded and as such may be unwilling to reveal certain information (Bell, 2005). This disadvantage became apparent at the trial stage of the interviews. Another disadvantage which became evident was the awkwardness of moving the voice recorder from the author to the respondent and back; this is however due to the type of voice recorder, the dictaphone, which was available at the time of interviews.

The preferred choice of capturing the interviews was handwritten. This did not interfere with the maintenance of eye contact with respondent to the extent that was feared. Writing was done at brief intervals and immediately typed up so that valuable information will not be lost. Interviewees were informed of the anonymity and purpose of the interview and how recorded data will be used.

3.1.7d Interview Analysis

Interviews were entered into Microsoft Word document and analysed alongside questionnaire results in Chapter 5.

Summary of interview findings are presented in Appendices 26 and 27.

3.1.8 Focus Groups

Focus groups originated in American marketing (Fern, 2001) and its purpose is to direct discussions to a particular issue or topic (Bell, 2005). Focus groups serve as a primary means of collecting qualitative research data (Morgan, 1997). Reasons for this choice of research method include its lack of discrimination against people who cannot read or write and they can encourage participation from learners who are reluctant to be interviewed on their own or who feel they have nothing to say. Focus groups are used to investigate experiences and beliefs about a clearly defined topic (Barnet, 2002). An additional reason for the use of focus groups is its efficiency over individual interviews. Two eight person focus groups would provide as many ideas as ten individual interviews (Morgan, 1997).

The focus group comprised of two groups from the classes participating in the survey. The two groups have been selected for the good mix of learners contained in both groups put together. Consideration was given to learners' comfort level; learners were not individually handpicked from the various groups. The presence of familiar co-learners will assist in ensuring the comfort

of all participants. A semi-structured focus group whereby the researcher redirects discussion back to the core issue should the need arise has been adopted.

3.2 Limitations

Although with a similar group of learners, the probability of having similar results is very high, there exists some limitations in the method adopted for this research.

- The assumptions that learners completed questionnaires and answered interview questions honestly and to the best of their abilities are some of the limitations of this survey.
- Some of the learners sampled are computer literacy learners who use internet and email for learning more frequently than other groups of learners sampled; learners of basic English and basic maths who may not use internet and email in the way and manner and as often as computer literacy learners would and this may have affected results.
- Educational software used by learners were not assessed as part of the research.

- Information regarding educational level of respondents would have assisted in analysis since in a few of the groups, some learners are at various levels. For instance, some may have obtained the Leaving Certificate 30 years ago but have reading and writing and numeracy problems and as such have not engaged in any satisfying employment or business.
- Some learners have commenced their course of study a few weeks prior to the survey, some development in confidence and self-esteem may have occurred prior to commencement of research.
- The use of more centres covering a wider geographic region would have yielded more valid results. The participants of the research consisted of a few adult basic education learners in County Donegal and as such results may not be generalised. County Donegal may be viewed as suffering to some extent exclusion from the rest of the country and this would have effects on learners living within the county. A research which extends the research population across the various counties in Ireland may yield a more generally acceptable conclusion.
- Group dynamics had effects on the focus group discussions.

3.3 Ethical Issues and Confidentiality

Ethics prevails in all of our activities (Lin, 2007). Bearing this in mind, research and practice should be sensitive to who we are, what we do, and why we do.

Permission was obtained from the adult education officer and organisers of the adult basic education programmes prior to commencement of research in the centres.

All research has been carried out confidentially; names of all participants in the various groups have been withheld in accordance with ethics of research. Participants were provided with information on the use of the research and consent obtained prior to commencement of interviews, distribution of questionnaires and focus group discussions.

3.4 Validity and Reliability

Validity refers to whether the measure of a concept really measures that concept and reliability refers to the consistency of a measure. The stability of a measure which is a factor in reliability ensures that the results do not fluctuate for a sample over time (Bryman, 2005).

Verification process which is checking, making sure and confirming (Morse, et al, 2002), was applied by testing questionnaires through pilot groups prior to compilation of the final questionnaires (See Appendices 1 to 7). The objective was to identify, correct errors and ensure that questions were understood by respondents and to also ensure that questionnaires are not misleading and that the questions measure that which is intended. Ideas for questionnaires, interviews and discussions which were poorly supported were relinquished regardless of the accompanying level of excitement.

Through the use of triangulation, erroneous results are curtailed and there exists collaboration and confirmation of gathered information.

To increase confidence in the findings of the research, hypothesis testing was carried out to test whether the mean of self-beliefs of learners learning with technology is significantly higher than the overall mean of self-beliefs of learners learning without technology (see section 5.4.6).

Chapter 4

Research Findings

4.1 Survey 1

This questionnaire was geared towards ascertaining the level of beliefs that adult basic education learners possess regarding their abilities and capabilities on their course and in their everyday lives. Below are results from 35 adult basic education learners who are not learning basic education with computer technology.

4.1.1 Results Regarding Self-beliefs on the Course

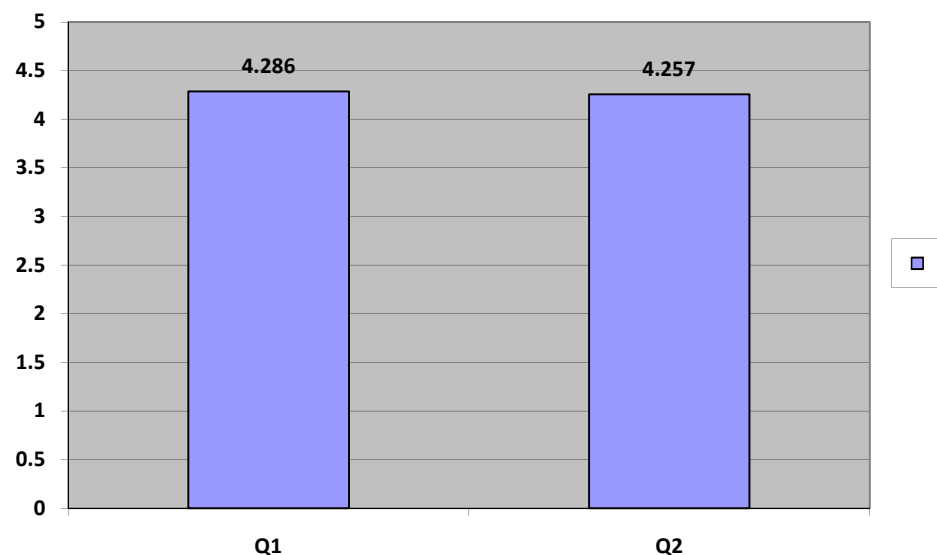


Chart 1- Beliefs Regarding Achievement on Course by Questions

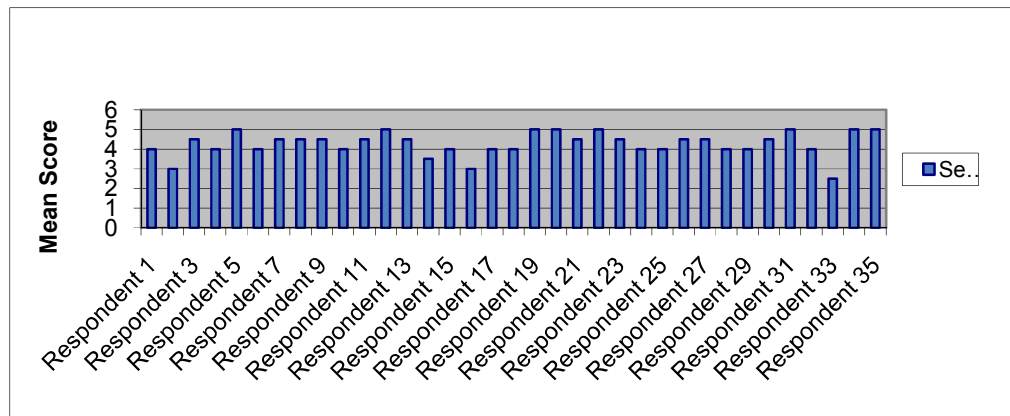


Chart 2 - Beliefs Regarding Achievement on Course by Respondents

From the charts above, both questions in construct 1 which evaluate learners' beliefs regarding their achievement on the course were found to have mean scores which are above 4. Results (see Appendix 15) also show that more than half the respondents believe that they are confident about achieving what they need to achieve on their course, Q1. Again, more than half of the respondents believe that they are confident about setting their own goals on the course, Q2.

Although the mode 4, for these questions indicates that most learners sampled believe that they possess positive self-beliefs to enable them to be successful on the course, some learners however have low self-beliefs regarding same. The lowest scores in this construct are from Respondent 33, with a score of 2.5, Respondents 16 and 2 with mean scores of 3 each.

Respondent 2, a male learner, believes he is a slow learner (see Appendix 21) and this may be the likely reason why he would not like to learn independently with the aid of the computer (Appendix 19); he prefers to learn amongst other learners (Appendix 18). Although Respondent 2 has fears from lack of adequate reading and writing (Appendix 20), he believes in himself (Appendix 17). These fears from lack of reading and writing may also be a reason for his aversion for learning independently with the computer.

Respondent 16 and 33 wish they believed more in themselves (Appendix 17) although Respondent 16 describes his capability to learn as "very capable" and Respondent 33 describes his as "50-50" (Appendix 21). Although both respondents would like to learn independently with the aid of the computer, they would still like tutor support and Respondent 33 specified this needed support as one-to-one (Appendix 19). This will be further discussed in Chapter 5.

4.1.2 Overall Self-beliefs

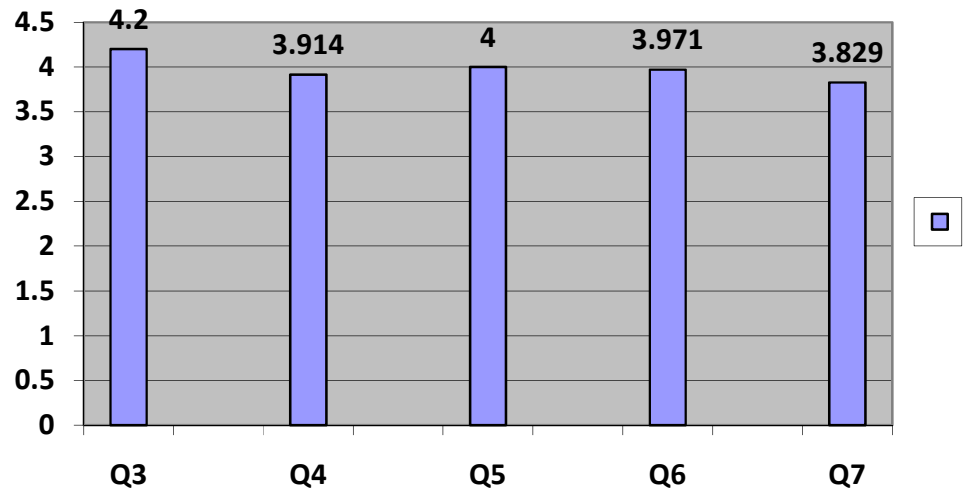


Chart 3 Beliefs Regarding Overall Achievement by Questions

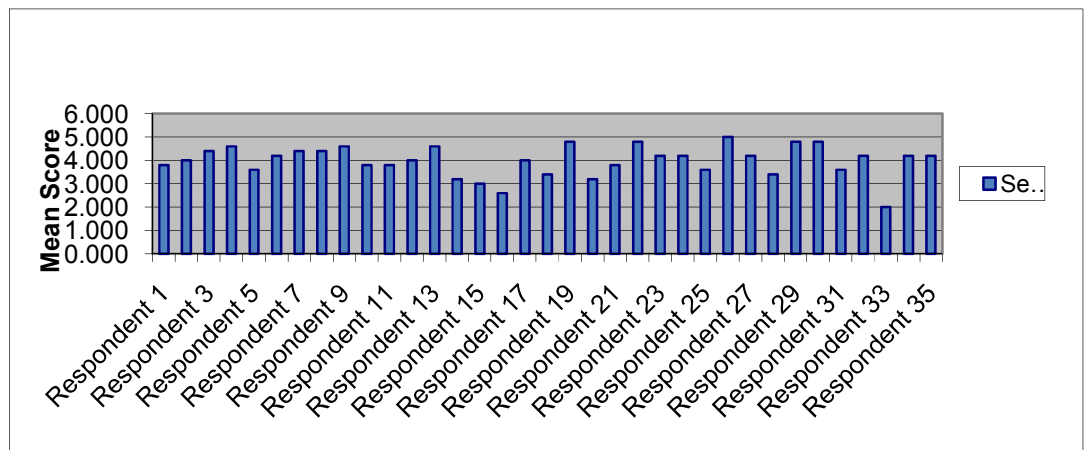


Chart 4 - Beliefs Regarding Achievement In Life by Respondents

Construct 2, Overall Self-beliefs, which has a mean score of 3.983, is represented in the charts above (See also Appendix 15).

Respondent 33 has the lowest score in this construct. The respondent is a male learner in the age band 35-44 (Appendix 21) and although wishes he could believe more in himself but not very often. Learner has a fear of embarrassing self amongst others and as such does not wish to learn amongst other learners (Appendix 18). He would like to learn independently with the aid of the computer but alongside one-to-one sessions with the tutor (Appendix 19). The respondent has fears from lack of reading and writing which have so far limited him from achieving his true potential (Appendix 20) and believes he has a 50-50 capability to learn (Appendix 21).

The second lowest score from Respondent 16 has an average mean score of 2.6 (Appendix 16). Respondent 16 is female, in the age band, 35-44 (Appendix 21), and very often wishes she could believe more in herself (Appendix 17). Again, the learner would like to learn independently with the computer but still prefers to learn with the tutor (Appendix 19) and is not certain about her feelings regarding learning amongst other learners (Appendix 18). The respondent describes her capability to learn as very capable.

Results show that for although some learners have positive beliefs about themselves and their abilities, there still exists some learners who although may believe in their capabilities to learn, have fears which limits them from achieving their true potential. Findings also suggest that some learners with fear from lack of basic

education may feel embarrassed to learn amongst other learners and due to this may like to learn independently with the aid of the computer. Learners though still appreciate the assistance or the assurance which having a tutor present may provide. Some learners on the other hand may not wish to learn independently with the computer. Factors including fear from lack of basic education which is necessary for reading and comprehension of material; lack of interest or dislike for computers are some of the reasons for this.

Findings also show that these various beliefs and feelings that learners possess about their capabilities cuts across various age bands and sexes of the adults sampled. A larger population may have enabled more accurate analysis of findings with regards to sexes and age groups.

4.1.2a Learners' Responses Regarding Overall Achievement

Response	Frequency	%
Yes very often	20	57
Yes, not very often	8	23
Not sure	0	0
Believe in self	6	17
Very much believe in self	1	3

Table 4 - Frequency Table Q14

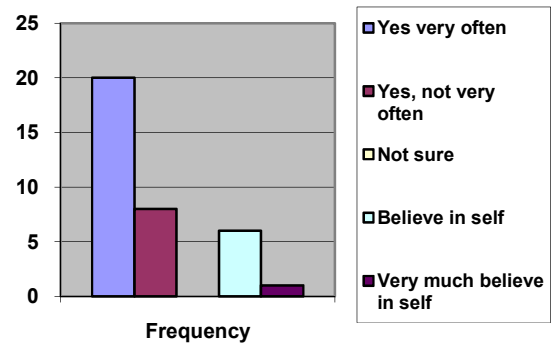


Chart 5 - Histogram Question 14

The frequency table above shows that more than half of the learners very often wish they could believe more in themselves. One should however not ignore results which show that some adult basic education learners do believe in themselves despite their low levels of educational attainment. Educational attainment may have been influenced by several factors in life.

Responses to Question 15, "How do you feel about learning amongst other learners?" is tabulated below:

Responses	Frequency	%
Like very much	19	54
Like	7	20
Not Sure	7	20
Do not like	1	3
Definitely do not like	0	0

Table 5 - Frequency Table Q15

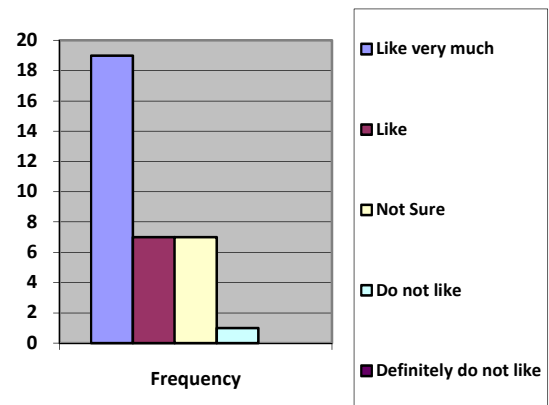


Chart 6 - Histogram Question 15

A high percentage of learners would like to learn amongst other learners. Some other comments accompanying answers to same question include:

- Likes to learn more English and gain confidence
- To help communication
- Meeting people
- Can ask for help
- Interesting
- Likes to work with people
- Enjoys the atmosphere

Comments show that some learners especially from origins which may be non English speaking believe that interacting with other learners in the group can assist in improving their English and confidence. An example of

this is Respondent 1 who is of African origin (see Appendix 18 and 21). Other factors such as the personality of the learner also plays a role in this issue. Extroverts for instance prefer to learn as part of a group where some physical social interactions exist.

Other comments from open questions, Q15 as shown below will throw more light on this issue:

- Think a lot of us are shy
- Has personal needs, prefers one-to-one
- Feels he is too slow for others
- Self-conscious
- Fears of embarrassing self amongst other learners

Results indicate that although most of the learners would like to learn amongst other learners, comments as seen above which can affect efficient learning cannot be ignored. Some adult basic education learners may be shy or embarrassed to communicate in a group which may be due to fears and beliefs about their learning capabilities and about their level on the course. The high percentage of learners who very much like to learn amongst other learners may also be due to individual groups of learners being at about the same level on commencement of the course and thus many learners may not be as embarrassed but actually begin to enjoy the positive interaction the group learning can bring.

Responses for Question 16, "How do you feel about learning independently with the aid of a computer?" are shown in the tables and chart below.

Response	Frequency	%
Like very much	10	29
Like	18	51
I do not like	7	20

Table 6 - Frequency Distribution Q16

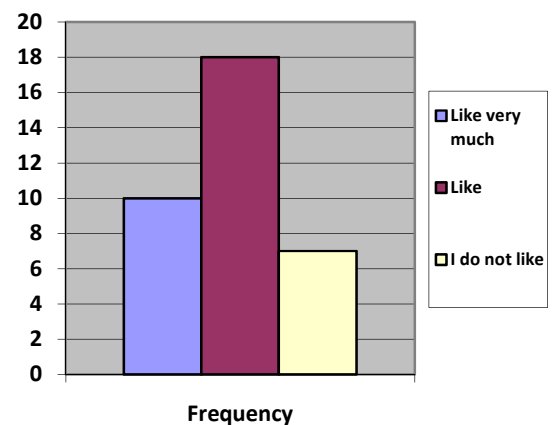


Chart 7 - Histogram Question 16

Additional comments include:

- Can help with spelling
- Gives you time to study on your own
- Getting more information
- Can learn at own pace
- Immediate feedback
- Would also like one-to-one tutor
- Sense of achievement

More comments are below:

- Not computer oriented
- Cannot talk back to you
- Likes computers but prefers to learn with a tutor

More than half of the respondents would like to learn independently with the aid of the computer. From additional comments, this may be due to the privacy which the computer offers learners who may be embarrassed about learning amongst others. Comments above enables one to understand that some learners do not like to learn with computers because of perceived lack of verbal communication with and from the computer, such learners would prefer learning with the tutor than with the computer. The learner may however be willing to learn with both the computer and the tutor alongside each other.

Question 17, Fears limiting learners from achieving their potential.

Responses	Frequency	%
Fears from lack of English/basic education	12	34
Fears from lack of confidence	3	9
Others	5	14
No Fears	8	23
No answer	7	20

Table 7 - Frequency Table Q17

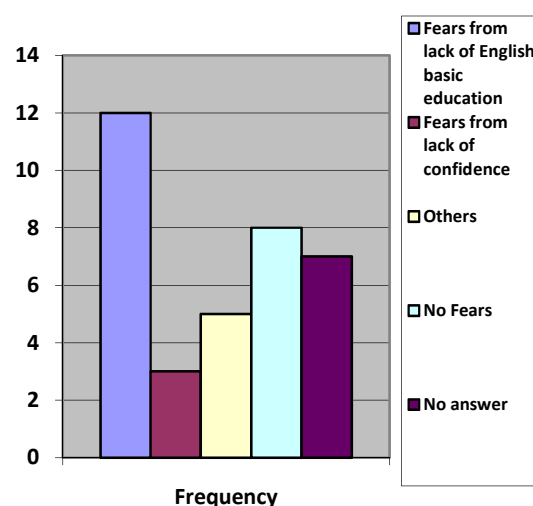


Chart 8 - Histogram Question 17

From table 7 above, 34% have fears from lack of basic education which have so far limited them from achieving their true potential.

Interestingly, Respondent 17 who has indicated an aversion to learning with computers (See below and Appendix 19) has also indicated lack of computer skills as fears which limits her from achieving her true potential. This shows that some learners who do not wish to learn with computers may be due to a lack of computer skills and fear of not being able to learn with same and not necessarily because of a dislike for computers.

	Q16 - Learning independently with the computer	Q17 - Fears of limitations and Description
Respondent 17	Do not like-not computer oriented	Yes-Lack of computer skills

Table 8 - Q16 and Q17 for Respondent 17

Results for Question 23 show that 31% of learners believe that they are slow learners or need more confidence.

Most adult basic education learners have fears from lack of basic skills which limit the learners from achieving what they wish to achieve in life even though they believe that that which needs to be achieved is achievable if only they had the necessary education. Adult learners are determined and focused about their goals on the course. Technology may act as an instrument to aid in achieving such goals faster and more effectively.

4.2 Findings – Survey 2

The results presented in this section are compiled from survey of adult basic education learners who are undergoing learning with technology using questionnaires, interviews and a focus group. Tables are presented in the 'Appendices' section of the paper.

4.2.1 Learners' Attitudes to Learning with Technology

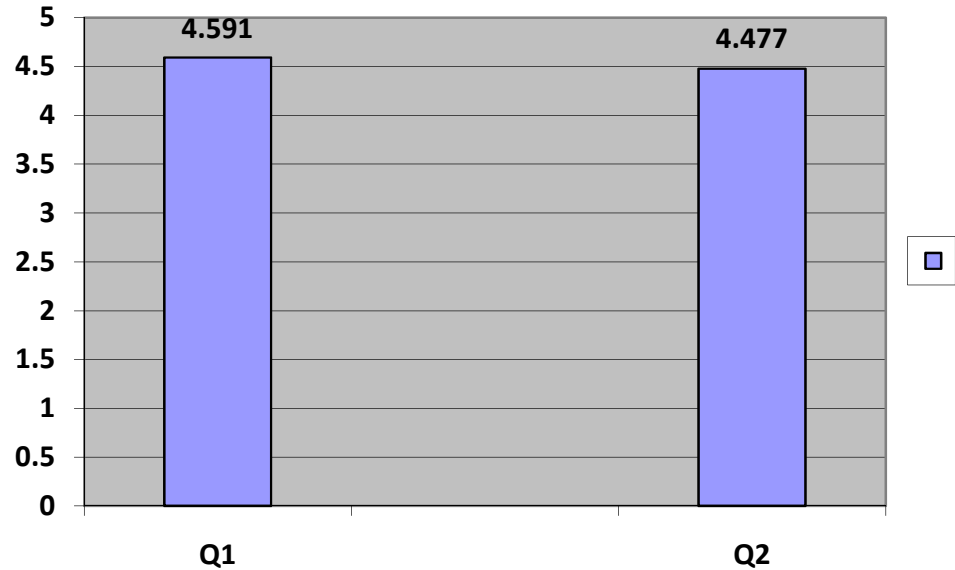


Chart 9 – Overall Learners' Attitudes to Computers

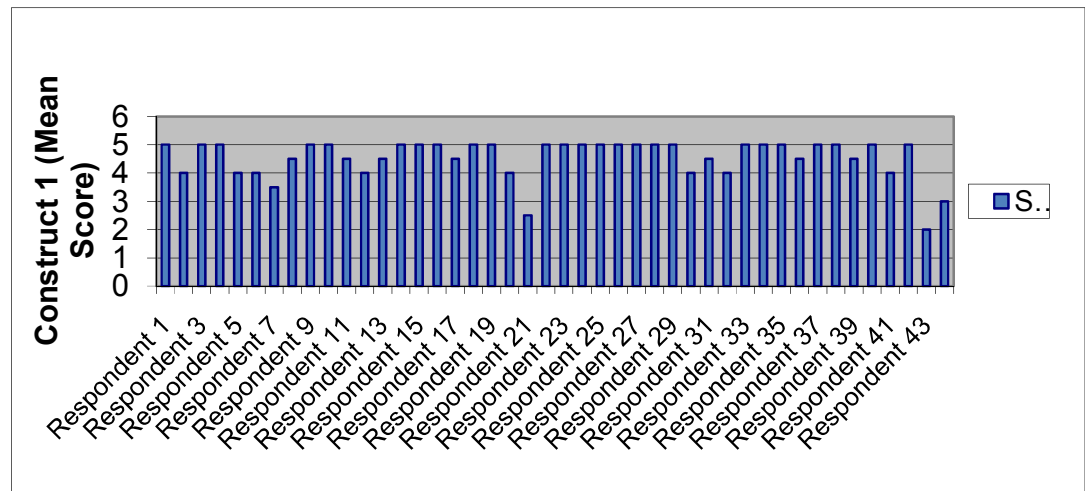


Chart 10 - Learners Attitudes to Computers by Respondents

The results for Question 1, "I have enjoyed learning basic skills with computers" and Question 2, "I would like to learn with computers again in the future" are presented above. Q1 has a mean of 4.591 and Q2, 4.477. The overall mean for this construct is 4.534. The enjoyment levels and the willingness to use the computer for future educational purposes are high. Respondents 21 and 43 however have low scores of 2.5 and 2 respectively (Appendix 16) and a close look at the learners' comments show that Respondent 21 has "No Reading" skills while Respondent 43 indicated that although she did not enjoy learning with the computer, she enjoyed using internet and email. Both learners are females (Table 8, below and Appendix 25). Results also show that both respondents had low scores for the other questions except for Q9 to Q13 for which there is a noticeable leap for Respondent 43 (Appendix 22).

	Q 1	Q 2	Mean/ Const ruct 1	Q 3	Q 4	Q 5	Q 6	Q 7	Mean/ Const ruct 2	Q 8	Q 9	Q 10	Q 11	Mean/ Const ruct 3	Q 12	Q 13	Mean/ Const ruct 4
Respon dent 21	3	2	2.5	3	3	3	2	1	2.400	1	1	2	3	1.75	2	2	2
Respon dent 43	2	2	2	2	2	2	2	2	2.000	2	4	4	5	3.75	4	4	4

Table 9 Respondent 21 and 43

Respondent 21 had not used the computer prior to commencing the course while Respondent 43 had used the computer but not often (Appendix 25). This may explain the reason why Respondent 43 likes to use the computer for internet and email; another reason may be that internet and email add value to the personal life of Respondent 43. This is supported by the interview with Learner 2 (Appendix 9).

From learners' interviews, Learner 2 did not enjoy learning with the computer due to the learner feeling lost and confused. Learner 2 though stated that she liked using the computer for internet and email.

The other 3 learners interviewed talked about how they enjoyed learning with the computer and stated that they would like to learn with computer technology again in the future. Learner 1 stated that she has enjoyed her current course primarily because she is learning with the computer.

Findings from focus groups (Appendix 14) also reveal that learners enjoyed learning with computers. A learner with physical disability stated that she found the computer fascinating and went on to talk about what using the computer has enabled her to accomplish irrespective of the discrimination and other challenges faced. The rest of the group agreed that they found the computer fascinating although group discussions reveal that learners' enjoyment of computers were particularly from using internet and email. Learners talked about how internet and email has opened a whole new world in the form of communications, socialisation, information gathering, gaming and the practice after classroom hours.

4.2.1a Comparison of Male and Female Learners' Attitudes to Computer Technology

Male and female learners' comparison of attitudes to learning with computer technology is presented in the table below.

Male Learners			Female Learners		
Mean Scores	Frequency	% of Total	Mean	Frequency	% of Total
5	11	64.7	5	14	51.9
4.5	3	17.6	4.5	4	14.8
4	2	11.8	4	6	22.2
3.5	0	0	3.5	1	3.7
3	1	5.9	3	0	0
2.5	0	0	2.5	1	3.7
2.0	0	0		1	3.7
Total	17			27	

Table 10- Attitudes to Technology, Male and Female Learners

The number of male and female learners surveyed are unequal amongst the groups sampled, female learners are more in number than male learners. The percentages are therefore obtained from the number of learners in each mean score and the total number of learners in each category. Results show that a higher percentage of male learners have more positive attitudes to learning with computer technology than female learners.

4.2.2 Overall Learners' Self-beliefs Regarding Success at Learning with Computers

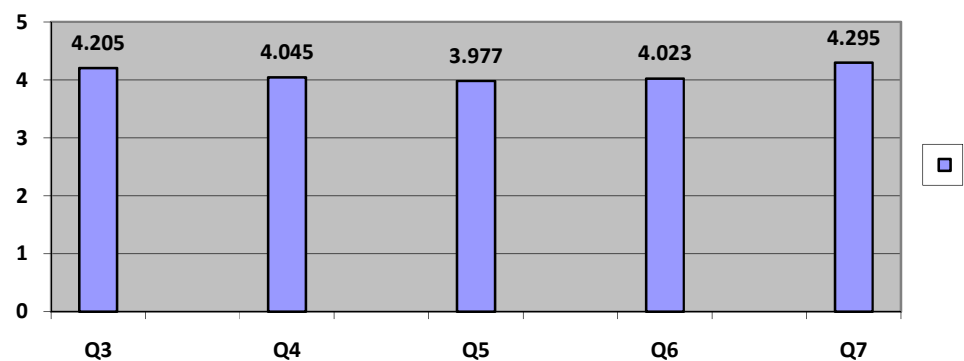


Chart 11 - Beliefs Regarding Success at Learning with Computers

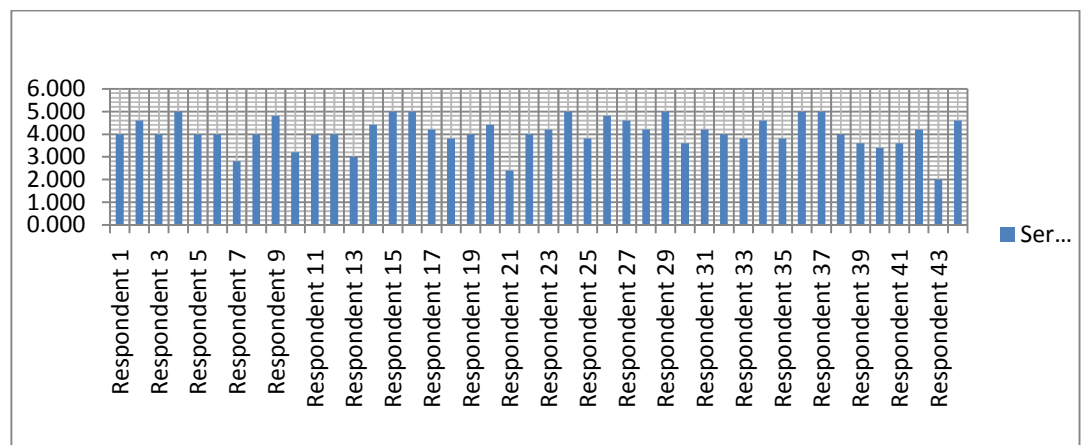


Chart 12 - Beliefs Regarding Success at Learning with Computers by Respondents

Construct 2 represents overall learners' self-beliefs with regards to working with computers and is covered by Q3 to Q7. Question 3 has a mean score of 4.205; Question

4, 4.045; Question 5, 3.977; Question 6, 4.000; and Question 7, 4.182.

Results for Q3 show that most learners believe that the computer helps them to understand better. The 5% who do not agree to this are Respondent 13 and Respondent 43. Respondent 13 has entered no further comments, is an unemployed Irish female, has never used the computer, and is in the age range 45-64. Respondent 43 also had low scores in the previous construct (Appendix 25). Both learners are female and although one of the learners has never used the computer before, the other has used the computer but not often; and lack of enjoyment from learning with the computer has a direct impact on understanding with same. A mixed group of learners which make up 11% neither agree nor disagree. Learners consist of 4 female learners and 1 male learner; written comments of the learners are shown below:

- Not enough time to learn
- No Reading
- Would like to learn with computers again in the future
- Successful in class but not sure

These comments indicate that factors which may have affected their decisions in the questionnaire include not having adequate time to learn with the computer or even

not having enough time to familiarise self with the computer and limitations from lack of literacy. Comments also show that although some learners may be successful in class from learning with computer technology, there still exists a lack of learner's belief in the understanding of taught material.

A large 20% do not agree nor disagree that the computer makes them feel more successful at tasks in Q4. The respondents in this category are a mixed group; some respondents have not written any comments which may be due to lack of reading and writing. Some learners have been learning with computers every day for 5 months, some a few hours daily for a year while others have learned with computers once a day for a few weeks, all of these may have affected questionnaire results. 30% of learners however strongly agree and 48% agree. Respondent 43 again disagrees.

Q5 has the lowest mean score in this construct with 3.977 (Appendix 22) although it has a mode of 4 which shows that most of the learners believe that with the aid of the computer, they feel more confident about getting the right answer. Respondent 43 has the lowest score in this question. For Questions 6 and 7, Respondent 7, 21 and 43 scored the lowest with 2, 1 and 2 respectively. Respondent 7 has no other comments but has had no prior computer knowledge. Respondent 21 and 43 as previously stated have comments of "No Reading" and "Didn't enjoy it

but like using internet and email". All three respondents are females (Appendix 25).

Interview with Learner 2 (Appendix 8), shows that the learner does not believe that computer technology can aid her learning due to her feeling lost and confused during a computer assisted learning session. Learner 1 believes that using the spell check facility of the computer aided effective learning and she also believes that using the computer has improved her capability to learn (Appendix 7).

During a reading and writing learning session, Tutor 2 observed that some learners surprisingly chose to work with crossword puzzles even though the same group of learners would not have chosen to work with same in the traditional classroom environment. Tutor 1 also observed learners' improved feeling of capability on the course and although the tutor attributed this improvement to both learning with computers and the length of time they have spent learning, the tutor believes that this improved belief in learners' capabilities is largely due to learning with the computer. These results tally with questionnaire results but findings from the focus group will provide a clearer picture of events.

During focus group discussions (Appendix 14), learners expressed appreciation regarding improved capability which learning with the computer has afforded. Learners

displayed excitement as they confidently talked about how the computer was used to source information from the internet. Learners' ability to type and present information gave them a huge confidence boost.

It is important to point out that this improved capability is more in favour of life situations than for accomplishments on the course. The author discovered that although literacy learners participated in discussions, some seemed shy or embarrassed about engaging in too much detail about their prior beliefs before commencement of learning. This may have been due to the groups being a mixture of not just reading and writing learners but also learners of computer literacy and numeracy.

4.2.3 Self-beliefs in Relation to Learning with Computers and Personal Life

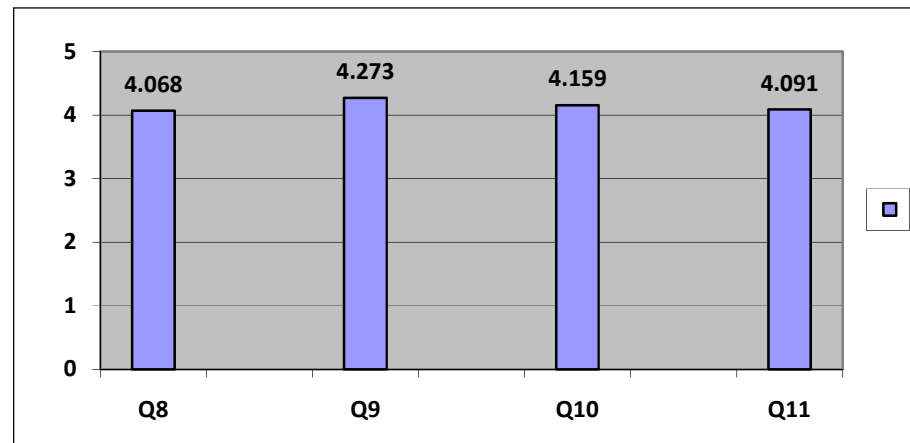


Chart 13 - Learners' Self-beliefs: Learning with Computers and Personal Life

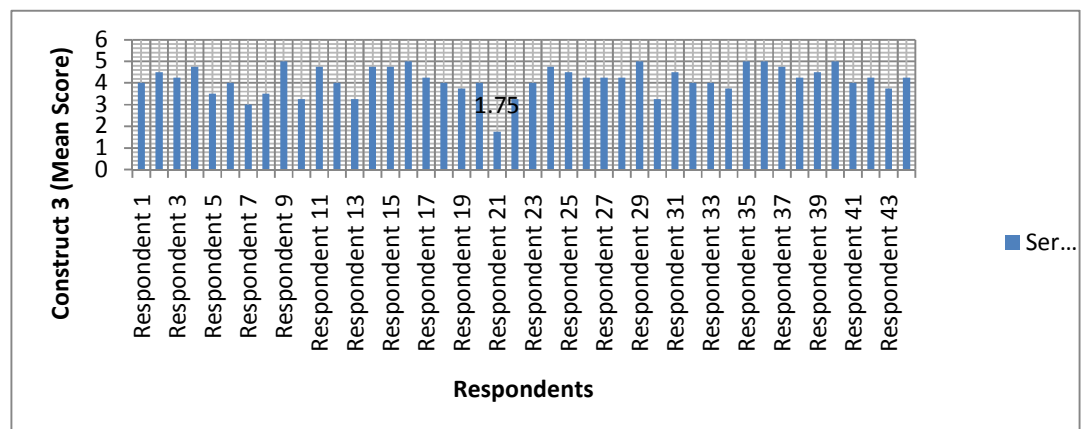


Chart 14 - Learners' Self-beliefs: Learning with Computers and Personal Life by Respondents

The chart for this construct by questions is shown above. The mean scores for Q8 to Q11 are above the score 4.

Learners' self-beliefs regarding the impact that learning with computers has on their personal lives are high. A close inspection of results by questions will assist in analysis.

4.3.2a Q8 and Q9: Computer, Confidence and Achievement

Q8, "I feel more confident about myself from learning with the computer", has 2% choosing "I strongly disagree". This is from Respondent 21. 7% chose "I disagree" which are from Respondents, 30, 34 and 43. Respondent 43 has been discussed in previous questions. These respondents are a mixed group of learners.

Q9, "Learning with the computer makes me feel that I can achieve more in life", shows that although no learner disagrees, 2% strongly disagree; this is again Respondent 21 who has been discussed earlier with no reading skills. A high 45% strongly agree to this, 11% do not agree nor disagree while 41% agree. Surprisingly, Respondent 43 has chosen "I agree" to this statement. Several reasons may be responsible for this, one of the reasons being the comment by the respondent "Don't enjoy it but like using the internet".

Overall, most learners believe that using the computer to learn makes them feel that they can achieve more in life.

During focus groups discussions, learners displayed excitement at the prospect of work experience and stated that it made them feel good to be able work in the community. Learners believe and stated that the world is computer based and learning with the computer has made them believe they can participate better in the community. Learners agreed that the acquired knowledge made them feel better about themselves.

4.3.2b Learning with Computer and Empowerment

Results from "I feel empowered by the acquisition of skills through the use of the computer" Q10, have 37% choosing "I strongly agree", 47% choosing "I agree". 11% neither agree nor disagree while 5% disagrees and no learner strongly disagrees. Respondent 7 and 21 disagree; both have no previous computer experience and are both females. Both fall within the same age category of 45-64.

Q11, "I feel more confident about meeting and mingling with other people in the community through learning basic skills with the computer" have 32% strongly agreeing and 48% agreeing to this. This may be from the acquisition of computer skills or from the acquisition of basic mathematics and reading skills. 18% of learners who neither agree nor disagree to this statement should not however be ignored. Respondent 30 disagrees to this although she strongly agrees to the previous question.

One of the likely reasons being that shy learners though may feel empowered by the acquisition of skills but may still not feel confident about mingling with other people in the community.

4.3.2c Learning with Computer and Personal Life

During interviews, Learners informed the author that changes in beliefs regarding their capabilities in their personal lives occurred. Learner 1 believes that learning with the computer has improved her personal life and stated that her carers had commented on it. The learner had participated previously on a similar course without the use of the computer as a tool for learning but neither liked nor enjoyed the course because she found the words too hard. Learner 1 also stated that she is looking forward to working in her local community. Learner 2 stated that although using computer software to learn maths made her feel confused and gave her no sense of confidence, using internet and email to contact friends and family improved her confidence and social life.

This feeling of confidence maybe from a sense of "belonging in the computer age" as the same learner stated that prior to learning maths, her level of confidence while socialising with friends was very low. Interview with Learner 3 emphasises this as she states "I have been learning English for ages but this last course

with the computer has promoted me so much with my achievement." Learner 3 went on to state that she learned English much faster through the use of computer technology thus is not as shy about speaking English around good speakers of the language. Learner 3 believes that her participation in her local church has been accelerated by her using the computer to learn English.

Findings from the focus groups were majorly focused around learners' ability to participate in their local communities. Learners discussed more about the impact that learning with the computer has had on their personal lives. A learner stated that she is now able to find her own flat and live alone due to the computer course she is currently participating on. Learning with the computer may have offered the learner a huge feeling of achievement which had previously seemed impossible. This feeling may also have been as a result of interacting with other learners and engaging in tasks with the computer which had previously seemed too big to achieve.

A learner with physical disability talked about not being able to do a lot of things on her own and believes that using the computer has helped her to believe that she is capable of doing more.

Female learners appear to choose disagree more often than men in the results analysed. It should be acknowledged

though that female learners make up 61% of the population sampled in this survey.

For most adult basic education learners surveyed, learning basic skills with technology seems to have had more impact on the learners' personal lives. This may be due to the particular needs of the adult.

4.2.3d Older Learners, Computers and Personal Life

20% of the population sampled in this questionnaire are older learners and 66% of these older learners are learning internet and email. From results, older learners have positive attitudes to learning with technology or learning the technology itself.

4.2.4 Computers and Learners' Overall Self-Beliefs

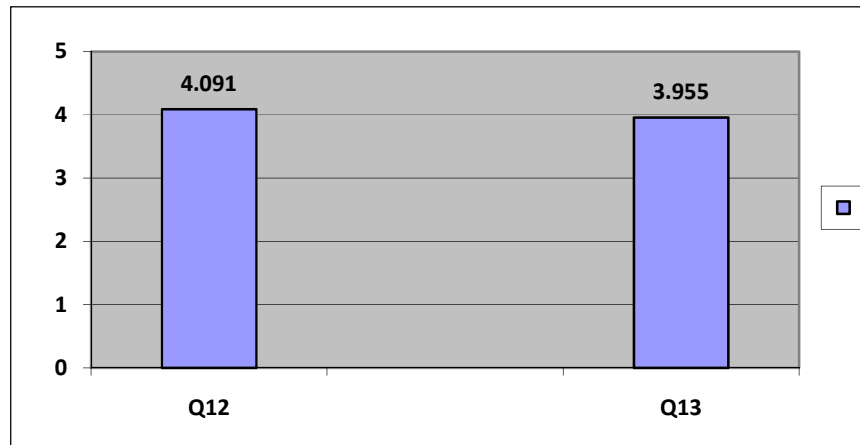


Chart 15 - Computers and Learners' Overall Self-beliefs

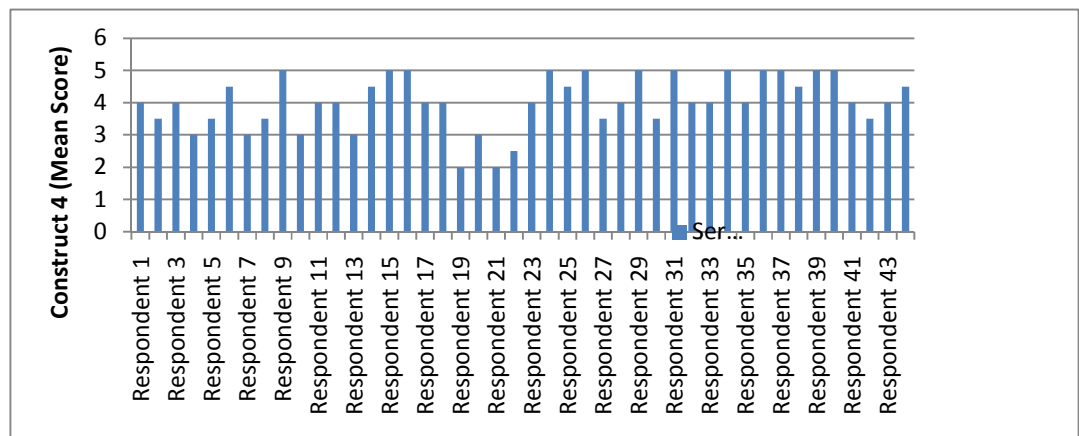


Chart 16 - Computers and Learners' Overall Self-beliefs by Respondents

Q12, "Learning basic skills with the computer has helped me to believe more in myself" has a mean score of 4.091. A mixed group of 34% and 48% strongly agree and agree

respectively to this statement. A very high 25% seem to be unsure whether to agree or disagree.

Whilst some learners have been able to transfer their acquired skills and improved beliefs in their academic capabilities to beliefs in their abilities to deal with everyday situations, some are however still trying to cope with lack of adequate reading skills with learning new skills necessary for working with the computer. Some learners also have not learned with the technology long enough to confidently decide on whether to agree or disagree. New learners, Respondents 19 and 22, are encountered here; Respondent 21 has been encountered in some previous questions. All three respondents are older learners, between the ages of 45-64, 2 have no prior computer knowledge while the other though has used computers prior to commencing the computer although this usage was not often.

Q13, "I now feel that I can achieve my true potential in life" has a mean score of 3.955 and with a large 25% unsure whether to agree or disagree. As evident from focus group findings, some learners now feel that they can achieve their true potential due to positive beliefs from working with the computer. Learners talked about the world being computer dominated and believe that acquired skills will assist in the job market. Some adults believe that since they can achieve this, they can achieve anything in life.

Three out of the four learners (75%) interviewed expressed that they very much enjoyed learning with the computer. Another interviewee stated that she did not enjoy learning basic maths with the computer during learning periods. Upon further probing, learner revealed that her enjoyment and experience of learning maths with the computer would have been more positive had the software been easier to use. The learner informed that some assistance was received from the tutor but due to a "feeling of disturbing the class", was not willing to make further requests for tutor support. The learner though stated that she enjoyed using internet and email

4.2.4a Comparison of Computer Technology and Overall Self-beliefs B/W Male and Female Learners

Male Learners			Female Learners		
Mean Scores	Frequency	% of Total	Mean Scores	Frequency	% of Total F.
5	7	41.2	5	5	18.5
4.5	3	17.6	4.5	2	7.4
4	4	23.5	4	9	33.3
3.5	1	5.9	3.5	5	18.5
3	1	5.9	3	4	14.8
2.5	1	5.9	2.5	0	0.0
2	0	0	2	2	7.4
Total	17			27	

Table 11 - Comparison of Technology and Self-beliefs B/w Male and Female Learners

From the frequency table above, male learners have higher overall self-beliefs from learning with the computer than

female learners. More discussion on this issue will follow in the next chapter.

4.2.4b Comparison between Overall Self-beliefs - Learning With/Without Technology: Questionnaire 1 and Questionnaire 2

Mean Score Questionnaire 1, Construct 2 (Learning without Computer Technology)	Mean Score Questionnaire 2, Construct 3 (Learning with Computer Technology)	% Difference	Increase / Decrease
3.983	4.148	4.1%	Increase

Table 12 - Comparison table: Self-beliefs and Learning with/without Technology

Construct 2, Questionnaire 1 and Construct 2 Questionnaire 2 are compared in the table above. These two constructs in the different questionnaires are not made up of the same questions but target the same issues. The mean score of the construct in Questionnaire 2 is greater than the construct in Questionnaire 1 by 4.1%.

In Construct 2 of Questionnaire 1, although some learners possess positive self-beliefs, a huge 40% of learners scored below a mean score of 4, hence almost half of the

learners who completed Questionnaire 1 do not possess positive self-efficacy beliefs regarding achievement in life.

Chapter 5 Discussion

This research was aimed at describing how technology impacts on the self-beliefs of adult basic education learners. The discussion has been grouped into two categories and sub-categories as follows:

1. To describe what level of self-beliefs are possessed by adult basic education learners
2. To describe the impact of technology on the self-beliefs of adult basic education learners:
 - Do adult basic education learners enjoy learning with technology?
 - Does technology impact positively on the self-beliefs of adult basic education learners with regards to success in learning?
 - Does technology help adult basic education learners believe better in their abilities?
 - Are adult basic education learners empowered by technology?

5.1 Adult Basic Education Learners'

Self-beliefs

Research literature portrays the literacy learner as possessing a sense of low self-worth (Beder, 1991) and low self-confidence (Languille, 2004). 40% of learners who are studying basic skills without the use of technology as an assistive tool for learning scored below 4 in Construct 2, Survey 1. The overall result which is also below the mean score 4 shows that most learners do not quite believe they possess the self-beliefs needed to achieve what they need to achieve in life. It is a necessity for teaching to foster and develop positive beliefs of learners (Bandura, 1986), especially for learners who are at risk. Questionnaire results additionally show that most adult basic education learners wish they could believe more in themselves, see section 4.1.2a, Table 4 and Chart 5.

Results though confirm that most learners in this category have more positive self-beliefs regarding achievement on the course. This may be as a result of the adult learners' problem centred orientation to learning (Knowles, 1990); older learners become more motivated to learn as needs and interests which learning will satisfy are experienced (Brookefield, 1994). The adult learners' desires for achievement on their course are fuelled by factors which include this need to solve a problem of inadequacy in life (Knowles, 1990).

5.1.1 Adult Basic Education Learners and Privacy

Although a number of learners prefer to learn privately or to have one-to-one tuition to hide their literacy deficiencies as research literature suggests, most learners enjoy learning amongst a group of like learners as revealed by the results. This is most especially if other learners in the group are perceived to be at equivalent levels of learning. Comments by adult learners are indicative of the fact that learners enjoy the social interactions and other advantages which such group learning brings. One of these advantages of group learning as highlighted by a respondent is its assistance in improving English skills and self-confidence. Groups being made up of learners at same level of learning encouraged a relaxed and comfortable atmosphere aiding in fostering learners' comfort levels and keenness to learn amongst other learners. Literacy learners though who are embarrassed about learning amongst other learners cannot be overlooked.

Although 54% of learners very much like to learn amongst other learners, 51% would like to learn independently with the aid of the computer. This may suggest that due to low self-beliefs, most of the learners would like to hide their literacy deficiencies from others.

For instance, from the interview with Learner 2, the learner did not wish to seek further help from the tutor due to "a feeling of disturbing the class". Learners' comments also show that despite the benefits derived from group learning, some would nevertheless like to engage in one-to-one tuition and independent learning with computer as literacy learners like to hide their literacy deficiencies (Jaffee, 2001; Osei, 2001) 30% of the learners who participated in the survey have no prior experience with computers but over 50% would like to engage independently in computer assisted learning; learners may have the knowledge that computer technology can offer the opportunity to practice skills in private (Imel, 1998), and provide a different, interesting and faster approach to acquire basic skills as evident from findings.

5.2 Learners' Attitudes to Learning with Technology

5.2.1 Computer Enjoyment

Although the novelty nature of computers should not be relied upon by digital media designers (Song and Keller, 2001) and educators as motivational tools, it is vital to point out that most adult basic education learners find the computer fascinating. 70% of the learners sampled enjoyed learning basic skills with the computer. Results

from interviews show that 3 out of the 4 learners interviewed enjoyed learning with the computer. Tutor support which was accessible to all the learners interviewed promoted learners' enjoyment of learning with computer technology. Tutors observed that adult learners' enjoyment of learning with computers were high despite literacy being a limitation. This supports findings by Venkatesh (1999) that game-based training which enhanced intrinsic motivation resulted in higher enjoyment levels than the traditional training method. One of the advantages of learning enjoyment is its impact on learners' decision and subsequent usage of technology (Hwang, 2003).

Some educators are of the opinion that new technologies require a higher level of education and training but as pointed out by Imel (1998), learners only log into the software program with a username and work their way through the program by using a few strokes. This implies that transfer of computer skills which is minimal but frequent aids learners' familiarity with the computer thus facilitating the reduction of anxiety. This is in agreement with the recommendation by Messineo and DeOllos (2005). There is the need for tutors to be aware that although adult learners arrive with a wealth of experience, some arrive with a wealth of anxiety which if not properly managed can negatively affect learning (Learning Ireland Network, 1999). More time allocation to learning sessions with technology will additionally assist anxious learners.

5.2.1a Internet and Learning Enjoyment

Focus group discussions reveal that learners' enjoyment of learning with computer technology was particularly from the use of the internet. Most learners enjoyed using the internet as a learning tool for researching information. Findings show that internet and email add value to learners' lives in the form of communication with friends and family, finding beneficial information on the internet and keeping abreast of news and other occurrences. Output of discussions from focus groups reveal that learners particularly enjoyed using internet and email and would like to use same in the future. This may be one of the reasons why internet and email are the most widely used of educational technologies (Imel, 1998). Learners also enjoy using internet and email because of its ability to help reduce feelings of isolation which are most often experienced by non-traditional learners, increase the independence of the learner and promote constructivist and collaborative learning (Burge 1994; Eastmond 1998). This was highlighted by Dillon-Marable Valentine (2006) in chapter 2 of this paper. The effect that enjoyment of learning has on the acquisition of skills is highlighted by Silver-Pacuilla (2006) by emphasising that personally captivating and highly interesting reading materials provide the drill and practice necessary for the acquisition of effective reading skills thus the strengthening of self-confidence.

High motivation is a crucial part to successful collaborative learning which is usually derived from experiences which bond the learners together (Jones and Issroff, 2005). A tutor observed that learners interact with each other especially when learning via the internet and commented "Some of them sometimes share or show each other information on the computer especially when they are using the internet". This also illustrates the learner's ownership of their own learning which is a aspect of control (Jones and Issroff, 2005).

5.2.1b Computer Enjoyment and Learners with Disabilities

Learners with physical and learning disabilities were found to enjoy learning with the computer. Learner 1 (has learning disability) revealed during the interview that the past experience of learning reading and writing in a traditional learning environment was off-putting but stated that learning same with computer technology was enjoyable. The computer has become a flexible writing tool capable of accommodating learners with or without learning disabilities (Mueller *et al*, 2009). Enjoyment of learning creates an atmosphere which fosters the development of positive self-beliefs through successful learning. Enjoyment of learning fosters more successful completion of tasks and the possibility of learners' obtaining the correct answers at tasks. This encourages learners to move to the next stage of learning and advancing in their achievements as evident from the

interview with Learner 3. Learners' enjoyment of learning fosters success in the course being undertaken (Eastmond, 1998) hence the Learning Disabilities Association of Canada [LDAC] (1999) endorse technology with its multimedia approaches and assistive tools as a viable mode of adult learning.

Although it is apparent from results that most learners enjoyed using computers for learning, but the percentage, though minimal, who did not enjoy learning with the computer and who did not wish to learn with the computer in the future cannot be ignored. Likely reasons for this dislike being learner's anxiety or just dislike for using computer technology as evident from Questionnaire 1. Although Learner 2 did not have a good experience with using the computer for learning maths, the learner stated that using internet and email for personal purposes such as reaching out to friends and family was enjoyed. Probing though revealed that learner's dislike of learning maths with the computer was due to the usability of the software.

5.2.2 Software Design

Squires and Preece (1996) emphasise the importance of usability features of computer software. Learner 2 revealed that had the software been easier to use, willingness to learn with the computer and enjoyment levels would have been improved. This emphasises the need for tutors to select and review software packages (Imel, 1998). There may be other factors though which

are likely causes of Learner 2's aversion to learning maths with the computer; anxiety.

5.2.3 Anxious Learners

As discussed in the literature review section of this paper, anxious learners may display fear of using computers; For instance, Learner 2 mentioned the fear of damaging the computer during the learning period. Although Messineo and DeOllós (2005) recommend learners' frequent use of technology to reduce anxiety, learners may not have access to computer technology in the home front and tutors' tight schedule may not allow for sufficient time to teach or supervise learners' extra computer usage. Research literature suggests that an instruction program which stimulates past memories of learners provides opportunities for tutors to reduce anxiety.

To the computer literate, learner's fear of damaging the computer may sound comical as learning with software may be viewed to require learners only to retrieve software program, identify themselves and enter a limited number of keystrokes. Lack of literacy poses huge fear of using what may be viewed by the learner as advanced technology as found from questionnaire results. In the instance with Learner 2, anxiety would have been curtailed and learning enjoyment enhanced had educational software been easier to use. In particular, for learners with low self-beliefs in their capabilities, it is essential for

educational software not to cause further anxiety but should be a tool with which learning and self-beliefs are enhanced.

5.2.4 Male and Female Learners Attitudes to Learning with Computer Technology

Although results show that women are generally more interested in learning (Boulton-Lewis *et al*, 2007), male learners in the groups sampled have more positive attitudes to learning with computer technology. More than 60% of the adult learners are females but the percentage of male learners who scored high in attitudes to learning with computers are higher than that of female learners. This finding explains the reason behind male learners' higher positive self-beliefs from learning with the technology than female learners as shown in table 10, section 4.2.4a.

These findings support claims by Wender (2004) that women have lower self-beliefs with courses requiring qualitative skills like technology. Likely causes are traced back to early years where discrimination in schools coloured girls' perceptions of technology (Penfold, 1988). Rennie (1987) reports similar findings and further states that girls are less likely to go on to study technology or work in technology based jobs.

Due to provisions of equal experiences and opportunities to male and female learners in some schools, (McCarthy and Moss, 1994), it is hoped that the gap will have a noticeable dip in the near future.

5.3 Self-beliefs Regarding Success at Learning

Enjoyment of learning with computer technology impacts on learners' comprehension (Blunsdon et al, 2003) of exercises, thus overall results support the claim by Edmonds (2005) that learning with the computer fosters literacy learners' understanding of taught material. It is evident though that this does not necessarily impact on all learners' understanding of material; Respondents 42, 35 and 13 scored high in attitudes to learning with computer technology but are unsure whether their understanding of material has improved. 84% of learners "strongly agree" and "agree" that their understanding is better from learning with the computer. Catalysts to this include learners' ability to practice taught material on the home front outside classroom hours as evident from interviews; constant practice can assist in more effective learning (Kulik, 1994) through memory retention and mastering of skills (Korwin and Jones, 1990). Silver-Pacuilla (2006) observed that even learners with the lowest literacy skills were able to learn with some support and the confidence built was

transferred to learning with learners' own computers on the home front.

All of these are contributors to learners' development of positive self-beliefs regarding success at learning as evident from the results.

5.3.1 Self-beliefs, Success and Understanding

From results, computers make it possible for most learners to obtain the right answer at tasks thus reinforcing learners' beliefs regarding successful learning. Positive self-beliefs in successful learning which arise from renewed confidence in learners' capabilities motivate learners to learn more as Bialo and Sivin-Kachala (1996) point out. Tutor support and encouragement which learners received likewise provided for successful learning as observed by tutors. It is however important to highlight the fact that not all learners felt successful from learning with technology due to lack of adequate time to successfully grasp taught material and fear from lack of reading skills. This reinforces the comment by Skinner *et al* (2000) that computer enthusiasts often forget that many literacy learners cannot read well enough to follow instructions on a monitor and use web resources. Although Ruben and Southard (2000) state that we may sometimes be forced to accept that we cannot resolve all the issues that are

faced by learners, tutor support with the computer however makes it easier for learners to follow instructions prior to engaging in independent learning with the computer.

Some learners felt successful in class but were yet unsure of their capabilities; for instance, Respondent 42, who entered the comment:

"I am success in class but I am not sure"

And interview with Learner 3:

"....That is the more reason why I decided to use my brain more. I was afraid that if I am outside without a computer that I will be in trouble.....".

Lack of confidence in learners' own capabilities and lack of understanding of taught material by some learners are both contributors to this dilemma. This issue assists to draw the attention of educators and digital media designers to the fact that learners' more frequent success at tasks does not directly translate to learners' understanding of taught material. Though results indicate that learners have positive beliefs in understanding of taught material, the few who may not should not be overlooked. Effort should go into ensuring more effective learning for all learners through provision of instruction and exercises which promote understanding. Further examination showed that

Respondent 13 enjoyed using the computer and would like to use the computer to learn again in the future but does not believe that the computer aided in better understanding. This also implies that although enjoyment of the computer does not necessarily translate to understanding of the taught topic, it creates the possibility for learners to desire to engage further in learning.

5.3.2 Self-beliefs, Confidence and Success

Although the mean score for "With the aid of the computer, I feel more confident about getting the right answer at tasks" is lowest in the construct, the mode indicates 4 (I agree) as the most frequently occurring score. There though exist learners such as Respondent 43 who do not believe that learning with the computer boosts their confidence at tasks.

Some learners were observed by Tutor 2 to have confidently chosen to work on tasks which ordinarily would have been shied upon by same learners in the traditional learning environment. This suggests that learning with computer technology makes most learners more confident about obtaining the correct answer at tasks. Learners' feeling of capability was improved and academic learning and confidence of learners have been improved as observed by tutors and as recommended by

Bandura (1986) in the concept of triadic reciprocity. In such situations as mentioned above, learners work with tasks which ordinarily would not have been the preferred choice in a traditional learning setting, discoveries are made by learners which foster constructive learning (Wilson, 1995, Jonassen et al, 1999). Successes at tasks from findings were enhanced by learners' beliefs which have been fostered by learning with computer technology. Success motivators and efficacy builders not only raise self-beliefs but create situations where people are less likely to fail (Bandura, 1988). Bandura (1988) also points out in the literature review section that success experiences is the the most effective way of building positive self-beliefs.

Adult learners' later successful learning experiences boost the confidence of learners (Hammond, 2004).

Due to the varied nature of the courses, some learners are exposed to computer technology in the classroom on a daily basis while on the other hand; some only use computer technology in the classroom once a week. Therefore the length of time within which learners have been exposed to technology has had some impact on results.

5.4 Self-beliefs in Relation to Learning with Computers and Personal Life

5.4.1 Education and Needs in Life

It is evident from results that adult basic education learners have fears which prevent them from achieving their potential in life; the major fear being from lack of basic education; there also exist fears from lack of confidence. All of these contribute to spurring adult learners to education to solve the problem of inadequacy in life (Knowles, 1990). Educators are advised to incorporate a variety of digital resources into the computer and internet to ensure that adult learners are better able to make connections between what they have previously learned in life and classroom learning (Lawrence, 2005); especially since behaviourist Maslow (1970) believes that all individuals have inner lives and potential for growth and self actualisation.

Results also reveal that most of the adult basic education learners very often wish they could believe more in themselves. A large number of learners "agree" and "strongly agree" that they feel more confident about themselves from learning with the computer. As highlighted in the previous section, learners' improved capability in learning arose from improved confidence

from successful learning experiences which promote goals of adult literacy learners; improving self-worth (Mueller *et al*, 2009).

Using the computer to learn enables adult basic education learners believe in the possibility of more positive achievements in life. Focus group discussions revealed this in greater detail especially by learners who are learning computer literacy. The use of internet and email has especially empowered learners to believe in their own capabilities and how these capabilities can be useful in their local communities and in other areas of their lives. This is especially since most adult literacy learners have internalized years of failure in school and consequently lack confidence in themselves as thinkers (Boudin, 1993).

Learners' improved capability in adult basic education was transferred to real life situations; authentic design of instruction engages adult basic education learners in practical activities bringing about practice and feedback within realistic situations (Reeves and Reeves, 1997). The need to solve these problems in real life situations may have initially prompted the adults' return to education. Learners' lives were improved in several ways; some learners are now able to use the ATM through the use of online games which involved same. A learner was particularly happy from being able to assist her child with her homework. Parks *et al* (2000) recommend adults' adaptation of technology in literacy education to

improve daily life. It is thus imperative that instruction is designed to support transfer of skills and knowledge (Reeves and Reeves, 1997) for adult basic education learners.

5.4.2 Basic Education and Empowerment

Interviewee's words:

"...I have been learning English for ages but this last course with the computer has promoted me so much with my achievement."

'It promotes you from a different level to another. I can now speak and read much better than before. I used to be uncomfortable about speaking but I can now help out with some things in church. I am not too shy when I meet people that speak good English'

From findings as shown above, reading and writing skills of learners were improved and the learner has been empowered by the acquisition of skills through technology. Learners do not just learn literacy and maths skills but also engage in the use of computers. The learner felt empowered to participate in church activities and not feel as shy about meeting people. One may argue that the learner may have been able to improve these aspects of her life without learning with the

computer; but the computer assists learners to learn in a faster and more interesting manner as pointed out by the learner. Learners also have the opportunity of experiencing real life situations through games and exercises. Berger (2001) particularly points out that the internet empowers learners by assisting the learner to take ownership of learning. Learners' confidence boosts in learning situations are transferred to the world outside the classroom. This is evident from all the learners interviewed and from focus group findings.

47% of learners agree and 37% strongly agree that they feel empowered by the acquisition of skills through the use of the computer. Learners' confidence to look for jobs may arise from newly acquired computer skills or for some, from not being in rehab. Learner 1's mention of 'fan club' is a clear indication of confidence.

5.4.2a Educational Persistence

Some adult learners' exhibit the need for deep learning and educational persistence as is obvious from the interview with Learner 3. Learner 3 refers to "use my brain" to perform tasks instead of constantly relying on the computer. The role that educational persistence plays is highlighted by Kurpius et al (2008) who also stated that past research has shown that self-beliefs influence students' decisions to stay on their course of study. Persistent decisions in academic matters have

been shown to predict student's level of attainment or achievement on completion (Kurpius et al, 2008). In this scenario where the learner hails from a minority ethnic group, this persistence may be from a motivation to achieve. Two other individual attributes that were positively related to academic persistence decisions were self-esteem and educational self-efficacy. McInerney et al (1997) found that Native American students' confidence in their ability, self-efficacy, to succeed in college was related to their persistence and motivation to achieve.

5.4.3 Older Adult Learners

Although Czaja et al (2006) is of the opinion that older learners have difficulty adopting technology, results show that older learners have positive attitudes to learning with technology. Older learners consisted of 20% of the population sampled in Questionnaire 2 and 66% of the older learners were learning computer literacy involving internet and email.

Older adults are learning computer technology at a pace faster than other ages of learners so as to control their own fate and their own environment as they age (McConatha, 2002). As a result of learning internet and email, nursing home residents were observed to have increased level of life satisfaction due to the confidence that learning to use the technology brings (McConatha, 2002). Computer skills and using the

internet gives older adults control over social isolation which is one of the biggest threats to their mental and psychological well being (Swindell, 2002; Chaffin and Harlow, 2005).

5.4.4 Socio-economic Factors and Literacy

Educational research shows that cognitive abilities related to literacy are associated with socioeconomic variables (Willms and Sommers, 2001). Socioeconomic factors which has been frequently cited as being one of the major causes of illiteracy (Skinner et al, 2000) is supported by findings from the survey. Over 45 % of the adult learners sampled are unemployed, either receiving a social welfare payment or an equivalent training allowance. Canadian Literacy and Learning Network (2002) state that people with low literacy skills are often members of poor or marginalized populations.

5.4.6 T-Test - Self-beliefs

A one-tailed hypothesis test was carried out with the formulae below based on the independent variables and values obtained from findings (section 4.2.4d), comparison between overall self-beliefs - learning with/without technology: Questionnaire 1 and Questionnaire 2.

The question: *Is the overall mean of self-beliefs of learners learning with technology significantly higher than the overall mean of the self-beliefs of learners learning without technology?*

The Null hypothesis, H_0 , is: the mean, μ , of self-beliefs of learners learning with technology = the mean of self-beliefs of learners learning without technology:

$$H_0 : \mu_1 = \mu_2$$

The Alternate hypothesis, H_1 , is: the mean, μ , of self-beliefs of learners learning with technology > the mean of self-beliefs of learners learning without technology:

$$H_1 : \mu_1 > \mu_2$$

From Calculations (See Appendix 29), $\text{Calc-t} = 2.275$, and $\text{Critical-t} = 1.293$

$\text{Calc-t} > \text{Critical-t}$, therefore the null hypothesis is rejected. This shows that there is evidence that the self-beliefs from learning with technology are significantly higher than from learning basic skills without technology.

5.5 Learning with Computer Technology and Overall Self-beliefs

Learning basic skills with technology has enabled learners to believe more in themselves. Technology creates the possibility for learners to obtain correct answers more frequently; this enables learners to believe better in their capabilities on the course and these beliefs are transferable to real life situations. Interview with Learner 3 reveals that the learner's hope of achieving more in life is now a firm belief and is evident in the learner's intention to obtain the Leaving Certificate. Silver-Pacuilla (2006) agrees that technology is a driving force which prompts adults to participate in continuing education.

The technological provision to obtain the right answer more easily may be perceived as exaggerating the learner's ability. Learner 3 had worries that she may be incapable of performing the same tasks and exercises without the aid of the computer especially outside the classroom environment. Respondent 42 in Questionnaire 2 showed similar worries by the comment "I am successful in class but I am not sure". Tutor 2 believes that although using the computer to learn made learners feel more successful, some were a game of luck but was advantageous in encouraging learners to look forward to using the computer again in the future. This feeling of being more successful also created the possibility for learners to engage in tasks which otherwise would not have been embarked upon in a traditional learning environment. Tutors observed that it gave learners a sense of accomplishment; there was an obvious improvement in learners' confidence. In a physically disabled learner's words, "*the computer opens up more avenues for me*"; which enhances beliefs that learners are capable of doing more.

Tutor 2 observed that learners' ability to link what has been taught to what is being practiced with the computer improves memory retention which impacts on learners' accomplishments thus enhancing beliefs in capabilities. Tutor 2 observed that although a 50% drop out rate occurred after day one of a computer literacy course, the other 50% who participated till the end of the course experienced huge confidence growth and enhanced beliefs in capabilities. Access to technology can create opportunities for adult literacy learners to

not just strengthen skills but also to improve computer literacy and reinforce self-determination (Silver-Pacuilla, 2006). The presence of low confidence prior to commencement of the various courses was the same with all learners interviewed.

As evident from focus group findings, some learners now feel that they can achieve their true potential due to enhanced positive beliefs from learning with the computer. Learners talked about the world being computer dominated and believe that acquired skills will have a positive impact. Some adults learning with the computer especially learners for whom this had seemed unachievable believe that since they can achieve this, they can achieve anything in life.

Kotrlik and Redman (2005) advise that even if there was no proof that technology improves student performance, tutors of adult basic education should continue to model the use of technology as it is increasingly present in the work, personal and educational environment.

5.6 Future Development

The author believes that further research in a broader geographical region such as the whole of Ireland will achieve more reliable results for forecasting and decision making. Broader geographical research will additionally provide a more authentic overall picture of

the effect of technology on the self-beliefs of adult basic education learners.

Future research into adult basic education learners and technology should accommodate provision for several variables affecting learners' beliefs and behaviours which could not be properly monitored within the scope of this thesis.

Chapter 6 Conclusion and Recommendations

Adult basic education learners possess fears limiting them from participating in life to the extent desired. Higher self-beliefs are however apparent in the academic life of the adult due to adults' engagement in learning to solve a problem of inadequacy in life. Positive self-beliefs aid an individual to overcome obstacles in life towards achieving one's true potential; but low self-conceptions on the other hand hinder the progress towards this achievement.

Although adults show higher self-beliefs in academic learning than for life pursuits, these beliefs in academic learning should not be completely relied upon. There is the need for these beliefs to be further developed and maintained to enable transference of positive beliefs from the academic lives of adult learners to real life situations. The research has shown that adults' engagement in basic education is more geared towards solving life's problems than for academic purposes hence fears which limit adults' achievement in life can provoke needs which prompts the adult to return to learning.

One of the challenges for tutors is not just using computer technology to try to eradicate illiteracy but to design and present instruction in a manner which fosters more positive self-efficacy beliefs in adults. Some adult basic education learners prefer one-to-one tuition due to learners' personal needs while some would like to engage independently in computer assisted learning due to the privacy it offers. A significant percentage of learners though enjoy group learning; in such situations, tutors should ensure that groups are made up of like learners who are at approximately same level of learning. This creates a more relaxed, comfortable and less embarrassing atmosphere, stimulating confidence growth and other positive self-beliefs. Grouping of like learners together also encourages positive social interactions which plays a vital role in education.

Using computers in basic education enables the adult learner to learn in a more enjoyable and successful manner which encourages further learning and the strengthening of positive self-beliefs. Although any learning may result in increased confidence, learning with technology enables exercises to be presented in a manner which facilitates more frequent success at tasks. As adult basic education learners become more successful, they are empowered to achieve what had previously seemed farfetched. Design of digital media for learning should however not only promote successful completion of tasks but should be designed to promote understanding of material. Technology enables a faster, more interesting and effective learning and also equips learners with

skills which they now feel enables them to participate better on the home front, in their local communities and at the workplace.

Learners who were unemployed feel more capable of engaging in employment due to increased confidence, and self-efficacy beliefs which learning with technology can bring. Inclusively, learners with disability feel empowered by technology; using computer technology is not just fascinating but a major accomplishment. The confidence of the learner is enhanced, learners recognise that they are capable learners; their learner identities change and become more positive. This confidence in learning in turn affects other areas of their lives.

Time provision should however be created in lesson plans for learners to adequately adapt to the new way of learning and to the introduction of technology into the learning environment which some adult basic education learners may find daunting. Adequate time to learn with technology will assist in calming anxious learners and fostering female learners' attitudes to learning with the computer.

Results show that male learners have more positive attitudes to learning with technology than female learners. Due to this, male learners possess more positive self-beliefs than female learners from learning with computer technology.

Computer technology creates the possibility for adult learners to take ownership of their own learning. Having access to computers boosts the self-confidence of adult basic education learners who had previously perceived using or learning with computer technology as incredible and unlikely. Social lives of adults are enhanced as participation in their local communities take on new heights. Adults feel less embarrassed in public places or amongst friends. Isolation which is experienced by a number of adults and in particular older adults due to lack of literacy skills is addressed. Social lives are enhanced particularly through the use of internet and email. Older adults are embracing computer technology to control their environment and to avoid social isolation which is the biggest threats to their mental and psychological well being.

Despite the benefits of computer technology in adult basic education, traditional learning should not be completely absent from the learning environment; it is recommended that technology be used to support traditional classroom teaching including one-one tuition.

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Appendix 1 Questionnaire 1

Private and Confidential

This questionnaire is for research purposes only. Please do not provide your personal details on any part of this questionnaire. All answers provided will be treated as strictly private and confidential. Completing this questionnaire indicates your voluntary acceptance to participate in the survey. Thank you very much for your time.

Please provide honest answers to all questions and circle your chosen answer.

Section A

1. Do you **believe** you are **confident** about achieving what you need to achieve on your course?

A. I strongly believe **B.** I believe **C.** I
am not sure

D. I do not believe **E.** I strongly do not
believe

2. Do you **believe** you are **confident** about setting your own goals on your course?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe E. I strongly do not believe

3. Do you **believe** you are **confident** about setting your own goals in life?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe E. I strongly do not believe

4. Do you **believe** you are **confident** about achieving what you have set out to achieve in life?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe E. I strongly do not believe

5. Do you **believe** that you possess self-confidence?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe E. I strongly do not believe

6. Do you **believe** that you possess strong and positive abilities?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe E. I strongly do not believe

7. Do you **believe** that your abilities are enough to help you to be successful at what you do?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe E. I strongly do not believe

8. Do you **believe** you are **confident** about meeting strangers?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe E. I strongly do not believe

9. Do you **believe** you are **confident** about joining a group of people?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe E. I strongly do not believe

10. Do you **believe** you are **confident** about speaking out at a meeting?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe E. I strongly do not believe

11. Do you **believe** that you can defend your position in an argument?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe E. I strongly do not believe

12. Do you **believe** that you can learn with the aid of the computer?

A. I strongly believe B. I believe C. I am not sure

D. I do not believe **E.** I strongly do not believe

13. Do you **believe** that the computer may aid your learning?

A. I strongly believe **B.** I believe **C.** I am not sure

D. I do not believe **E.** I strongly do not believe

Section B

14. Do you often wish you could **believe** more in yourself?

A. Yes very often **B.** Yes, but not very often **C.** I am not sure

D. No, I believe in myself **E.** I very much believe in myself

15. How do you feel about learning amongst other learners?

A. I like, very much **B.** I like **C.** I am not sure
D. I do not like

E. I definitely do not like

- Please kindly explain your answer, what do you like or not like about learning amongst other learners

16. How do you feel about learning independently with the aid of the computer?

A. I like, very much B. I like C.
I do not like

- Please kindly explain your answer

17. Do you have any fears which you feel have so far limited you from achieving your true potential? If so please describe and explain their limitations to you.

18. Are you usually willing to try new things?

19. Are you usually willing to learn new things?

20. Please explain your answer to the previous question,
why do you like to learn new things?

21. Do you set short term goals for yourself to achieve?

22. Do you set long term goals for yourself to achieve?

23. Do you usually take responsibility for your actions?

24. How would you describe your capability to learn?

25. Please circle your gender: 1. Male 2. Female

26. Please circle the economic status applicable to you:

A. Social Welfare Recipient B. Employed Part-time

C. Employed Full Time

D. Training Allowance

27. What is your ethnicity?

A. Irish National, Settled B. Irish National, Traveller

C. Non-Irish National, EU Citizen

D. African E. Other, Please specify_____

28. Have you used computers before you commenced this course?

A. Yes very often B. Yes, but not very often C.
No, I have not

29. What age category do you fall into?

A. 18 - 24 B. 25 - 34 C. 35 - 44
D. 45 - 64 E. 65+

Appendix 2 Sample Questionnaire 3

Private and Confidential

Please do not provide your personal details on any part of this questionnaire. All answers provided will be treated as strictly private and confidential.

This is a sample questionnaire which will assist in producing a final questionnaire for research purposes.

Please provide honest answers to all questions and circle your chosen answer.

1. Do you **believe** you are **confident** about achieving what you need to achieve on your course?

A. I strongly believe B. I believe C. I do not believe

2. Do you **believe** you are **confident** about setting your own goals on your course?

A. I strongly believe B. I believe C. I do not believe

3. Do you **believe** you are **confident** about setting your own goals in life?

A. I strongly believe B. I believe C. I do not believe

4. Do you **believe** you are **confident** about achieving what you have set out to achieve in life?

A. I strongly believe B. I believe C. I do not believe

5. Do you **believe** that you possess self-confidence?

A. I strongly believe B. I believe C. I do not believe

6. Do you **believe** that you possess strong and positive abilities?

A. I strongly believe B. I believe C. I do not believe

7. Do you **believe** that your abilities are enough to help you to be successful at what you do?

A. I strongly believe B. I believe C. I do not believe

8. Do you **believe** you are **confident** about meeting strangers?

A. I strongly believe B. I believe C. I do not believe

9. Do you **believe** you are **confident** about joining a group of people?

A. I strongly believe B. I believe C. I do not believe

10. Do you **believe** you are **confident** about speaking out at a meeting?

A. I strongly believe B. I believe C. I do not believe

11. Do you **believe** that you can defend your position in an argument?

A. I strongly believe B. I believe C. I do not believe

12. Do you **believe** that you can learn with the aid of the computer?

A. I strongly believe B. I believe C. I do not believe

13. Do you **believe** that the computer may aid your learning?

A. I strongly believe B. I believe C. I do not believe

14. Do you often wish you could **believe** more in yourself?

A. Yes very often B. Yes, but not very often C. No, I already believe in myself

15. How do you feel about learning amongst other learners?

A. I like, very much B. I like C. I do not like

- Please kindly explain your answer

16. How do you feel about learning independently with the aid of the computer?

A. I like, very much B. I like C. I do not like

- Please kindly explain your answer

17. Do you have any fears which you feel have so far limited you from achieving your true potential? If so please describe and explain their limitations to you.

18. Are you usually willing to try or learn new things?

19. Please explain your answer to the previous question,
why do you like to learn new things?

20. Do you set short term or long term goals for
yourself to achieve?

22. Do you usually take responsibility for your actions?

23. How would you describe your capability to learn?

24. Please circle your gender: 1. Male 2. Female

25. Please circle the economic status applicable to you:

B. Social Welfare Recipient B. Employed Part-time

C. Employed Full Time

26. What is your ethnicity?

A. Irish National, Settled	B. Irish National,
Traveller	

C. Non-Irish National, EU Citizen

D. African	E.	Other,	Please
specify _____			

27. Have you used computers before you commenced this course?

A. Yes very often B. Yes, but not very often C. No, I have not

Appendix 3 Sample Questionnaire 2

Private and Confidential

Please do not provide your personal details on any part of this questionnaire. All answers provided will be treated as strictly private and confidential.

This is a sample questionnaire which will assist in producing a final questionnaire for research purposes.

Please provide honest answers to all questions and circle your chosen answer.

1. Do you **believe** you are **confident** about achieving what you need to achieve on your course?

A. I strongly believe B. I believe C. I do not believe

2. Do you **believe** you are **confident** about setting your own goals on your course?

A. I strongly believe B. I believe C. I do not believe

3. Do you **believe** you are **confident** about setting your own goals in life?

A. I strongly believe B. I believe C. I do not believe

4. Do you **believe** you are **confident** about achieving what you have set out to achieve in life?

A. I strongly believe B. I believe C. I do not believe

5. Do you **believe** that you possess self-confidence?

A. I strongly believe B. I believe C. I do not believe

6. Do you **believe** that you possess strong and positive abilities?

A. I strongly believe B. I believe C. I do not believe

7. Do you **believe** that your abilities are enough to help you to be successful at what you do?

A. I strongly believe B. I believe C. I do not believe

8. Do you **believe** you are **confident** about meeting strangers?

A. I strongly believe B. I believe C. I do not believe

9. Do you **believe** you are **confident** about joining a group of people?

A. I strongly believe B. I believe C. I do not believe

10. Do you **believe** you are **confident** about speaking out at a meeting?

A. I strongly believe B. I believe C. I do not believe

11. Do you **believe** that you can defend your position in an argument?

A. I strongly believe B. I believe C. I do not believe

12. Do you **believe** that you can learn with the aid of the computer?

A. I strongly believe B. I believe C. I do not believe

13. Do you **believe** that the computer may aid your learning?

A. I strongly believe B. I believe C. I do not believe

14. Do you often wish you could **believe** more in yourself?

A. Yes very often B. Yes, but not very often C. No, I already believe in myself

15. How do you feel about learning amongst other learners?

A. I like, very much B. I like C. I do not like

- Please kindly explain your answer

16. How do you feel about learning independently with the aid of the computer?

A. I like, very much B. I like C. I do not like

- Please kindly explain your answer

17. Do you have any fears which you feel have so far limited you from achieving your true potential? If so please describe and explain their limitations to you.

18. Are you usually willing to try or learn new things?

19. Please explain your answer to the previous question,
why do you like to learn new things?

20. Do you set short term goals for yourself to achieve?

21. Do you set long term goals for yourself to achieve?

22. Do you usually take responsibility for your actions?

23. How would you describe your capability to learn?

24. Please circle your gender: 1. Male 2.
Female

25. Please circle the economic status applicable to you:

- C. Social Welfare Recipient B. Employed Part-time
C. Employed Full Time
D. Training Allowance

26. What is your ethnicity?

A. Irish National, Settled B. Irish National,
Traveller

C. Non-Irish National, EU Citizen

D. African E. Other, Please
specify_____

27. Have you used computers before you commenced this
course?

A. Yes very often B. Yes, but not very often C.
No, I have not

28. What age category do you fall into?

A. 18 - 24 B. 25 - 34 C. 35 - 44

D. 45 - 64 E. 65+

Appendix 4 Sample Questionnaire 1

Private and Confidential

Please do not provide your personal details on any part of this questionnaire. All answers provided will be treated as strictly private and confidential.

This is a sample questionnaire which will assist in producing a final questionnaire for research purposes.

Please provide honest answers to all questions and circle your chosen answer.

Do you believe you are confident about achieving what you need to achieve?

1. I confidently believe 2. I believe but not confidently 3. Do not believe

Do you believe you are confident about setting your own goals on your course?

1. I confidently believe 2. I believe but not confidently 3. I do not believe

Do you believe you are confident about setting your own goals in life?

1. I confidently believe 2. I believe but not confidently 3. I do not believe

Do you believe you are confident about achieving what you have set out to achieve?

1. I confidently believe 2. I believe but not confidently 3. I do not believe

Do you believe that you possess self-confidence?

1. I confidently believe 2. I believe but not confidently 3. I do not believe

Do you believe that you possess strong and positive abilities?

1. I confidently believe 2. I believe but not confidently 3. I do not believe

Do you believe that your abilities are enough to help you to be successful at what you do?

1. I confidently believe 2. I believe but not confidently 3. I do not believe

Do you believe you are confident about meeting strangers?

1. I confidently believe 2. I believe but not
confidently 3. I do not believe

Do you believe you are confident about joining a group of
people?

1. I confidently believe 2. I believe but not
confidently 3. I do not believe

Do you believe you are confident about speaking out at a
meeting?

1. I confidently believe 2. I believe but not
confidently 3. I do not believe

Do you believe that you can defend your position in an
argument?

1. I confidently believe 2. I believe but not
confidently 3. I do not believe

Do you believe that you can learn with the aid of the
computer?

1. I confidently believe 2. I believe but not
confidently 3. I do not believe

Do you believe that the computer may aid your learning?

1. I confidently believe 2. I believe but not confidently 3. I do not believe

Do you often wish you could believe more in yourself?

1. Yes very often 2. Yes, but not very often 3. No, I already believe in myself

How do you feel about learning amongst other learners?

1. I strongly like 2. I like, but not strongly 3. I do not like

Please kindly explain your answer

How do you feel about learning independently with the aid of the computer?

1. I strongly like 2. I like, but not strongly 3. I do not like

Please kindly explain your answer

Do you have any fears which you feel have so far limited you from achieving your true potential? If so please describe and explain their limitations to you.

Appendix 5 Questionnaire 2

Private and Confidential

This questionnaire is for research purposes only. Please do not provide your personal details on any part of this questionnaire. All answers provided will be treated as strictly private and confidential. Completing this questionnaire indicates your voluntary acceptance to participate in the survey. Thank you very much for your time.

Please feel free to disagree or agree with any of the statements as honest answers to all questions would be appreciated. Circle any of the answers chosen.

Section A

1. I have enjoyed learning basic skills with computers

A. I strongly agree**B.** I agree**C.** I neither agree nor disagree**D.** I disagree**E.** I strongly disagree

2. I would like to learn with computers again in the future

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

3. Using the computer helps me to understand better

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

4. The computer makes me more successful at tasks

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

5. With the aid of the computer, I feel more confident
about getting the right answer at tasks

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

6. The computer makes me feel more successful

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

7. Using the computer to learn makes me feel that I can
achieve what I need to achieve on my course

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

8. I feel more confident about myself from learning
with the computer

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

9. Learning with the computer has made me believe that
I can achieve more in life

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

10. I feel empowered by the acquisition of skills
through the use of the computer

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

11. I now feel more confident about meeting and mingling
with other people in the community through learning
basic skills with the computer

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

12. Learning basic skills with the computer has helped
me to believe more in myself

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

13. I now feel that I can achieve my true potential in
life

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

14. Do you have any comments to add? Please use the
space provided below:

15. Please circle your gender: 1. Male 2. Female

D. Social Welfare Recipient B. Employed Part-time
C. Employed Full Time
D. Training Allowance

A. Irish National, Settled Traveller	B. Irish National, Traveller
<p>1. The Irish National, Settled Traveller is a person who is a member of the Irish Traveller community and who is settled in a permanent residence.</p> <p>2. The Irish National, Settled Traveller is a person who is a member of the Irish Traveller community and who is settled in a permanent residence.</p> <p>3. The Irish National, Settled Traveller is a person who is a member of the Irish Traveller community and who is settled in a permanent residence.</p> <p>4. The Irish National, Settled Traveller is a person who is a member of the Irish Traveller community and who is settled in a permanent residence.</p> <p>5. The Irish National, Settled Traveller is a person who is a member of the Irish Traveller community and who is settled in a permanent residence.</p>	<p>1. The Irish National, Traveller is a person who is a member of the Irish Traveller community and who is not settled in a permanent residence.</p> <p>2. The Irish National, Traveller is a person who is a member of the Irish Traveller community and who is not settled in a permanent residence.</p> <p>3. The Irish National, Traveller is a person who is a member of the Irish Traveller community and who is not settled in a permanent residence.</p> <p>4. The Irish National, Traveller is a person who is a member of the Irish Traveller community and who is not settled in a permanent residence.</p> <p>5. The Irish National, Traveller is a person who is a member of the Irish Traveller community and who is not settled in a permanent residence.</p>

C. Non-Irish National, EU Citizen

D. African

E. Other, Please specify_____

18. Have you used computers before you commenced this course?

A. Yes very often B. Yes, but not very often C.
No, I have not

19. What age category do you fall into?

A. 18 - 24 B. 25 - 34 C. 35 - 44
D. 45 - 64 E. 65+

Appendix 6 Sample Questionnaire 2

Private and Confidential

Please do not provide your personal details on any part of this questionnaire. All answers provided will be treated as strictly private and confidential. Completing this questionnaire indicates your voluntary acceptance to participate in the survey.

Please feel free to disagree or agree with any of the statements as honest answers to all questions would be appreciated. Circle you with any of the answers chosen answer.

Section A

1. I have enjoyed learning basic skills with computers

A. I strongly agree

B. I agree

C. I
neither agree nor disagree

D. I disagree

E. I strongly disagree

2. I would like to learn with computers again in the future

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

3. Using the computer helps me to understand better

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

4. The computer makes me more successful at tasks

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

5. With the aid of the computer, I feel more confident
about getting the right answer at tasks

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

6. The computer makes me feel more successful

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

7. Using the computer to learn makes me feel that I can
achieve what I need to achieve on my course

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

8. I feel more confident about myself from learning
with the computer

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

9. Learning with the computer has made me believe that
I can achieve more in life

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

10. I feel empowered by the acquisition of skills through the use of the computer

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

11. I now feel more confident about meeting and mingling with other people in the community through learning basic skills with the computer

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

12. Learning basic skills with the computer has helped me to believe more in myself

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

13. I now feel that I can achieve my true potential in life

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

14. Do you have any comments to add? Please use the space provided below:

Appendix 7 Sample Questionnaire 2

Private and Confidential

Please do not provide your personal details on any part of this questionnaire. All answers provided will be treated as strictly private and confidential. Completing this questionnaire indicates your voluntary acceptance to participate in the survey.

Please provide honest answers to all questions and circle your chosen answer.

Section A

1. I have enjoyed learning basic skills with computers

A. I strongly agree	B. I agree	C. I neither agree nor disagree
D. I disagree	E. I strongly disagree	

2. I would like to learn with computers again in the future

A. I strongly agree	B. I agree	C. I neither agree nor disagree
----------------------------	-------------------	---

D. I disagree **E.** I strongly disagree

3. Using the computer helps me to understand better

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

4. The computer makes me more successful at tasks

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

5. With the aid of the computer, I feel more confident
about getting the right answer at tasks

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

6. The computer makes me feel more successful

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

7. Using the computer to learn makes me feel that I can achieve what I need to achieve on my course

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

8. I feel more confident about myself from learning with the computer

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

9. Learning with the computer has made me believe that I can achieve more in life

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

10. I feel empowered by the acquisition of skills through the use of the computer

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

11. I now feel more confident about meeting and mingling with other people in the community through learning basic skills with the computer

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

12. Learning basic skills with the computer has helped me to believe more in myself

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

13. I now feel that I can achieve my true potential in life

A. I strongly agree **B.** I agree **C.** I
neither agree nor disagree

D. I disagree **E.** I strongly disagree

Appendix 8 Interview – Learner 1

Profile of respondent: Female, age 41, possesses low literacy and numeracy skills, has a learning disability and studying a computer literacy course.

Origin: Irish.

Researcher: Thank you for agreeing to this interview. Like I informed you earlier, this interview is for research purposes only on adults learning with computers and how it affects their attitudes and beliefs. Your name or where you are currently learning will not be mentioned in this research but the information you give me will be used. I hope you understand?

Respondent: Yes, like my carer always says what happens in these four walls stays in these four walls. Smiles.

Researcher: What course are you currently studying?

Respondent: Computer Course

Researcher: How long have you been studying this course?

Respondent: Since October 2009

Researcher: How are you finding it so far?

Respondent: Some stuff are hard and we are at different levels.

Researcher: Why did you decide to start this course?

Respondent: I finished rehab and a staff recommended it. She was one of my carers.

Researcher: How did you feel about yourself before you started the course?

Respondent: Alright.

Researcher: Did you feel you could do what you are doing now?

Respondent: Yes I did.

Researcher: Do you feel that there are any changes between when you started the course and now?

Respondent: Yes, my carer is very happy with me. The staff at cottages couldn't believe how quickly I got on. I didn't like the other course.

Researcher: Which course? Were you attending any other course before this?

Respondent: I was doing the English class once a week with but I didn't like it.

Researcher: Why didn't you like it?

Respondent: It was too hard. The words were too difficult.

Researcher: What about this course?

Respondent: I like this course better. I like using the internet to check the news and weather. I also send emails to my fan club.

Researcher: If you had not been learning with the computer, do you think you would've liked it this much?

Respondent: No. The computer makes me like it.

Researcher: What about the other course, how did you learn, was it with computers or did you learn in the usual classroom?

Respondent: We learned just like that. I did not use the computer.

Researcher: You mentioned that your carer is happy with the way you have gotten on. What about yourself? How do you feel about how you've gotten on, personally?

Respondent: Oh great. I am much better than before.

Researcher: What about your confidence?

Respondent: I am more confident now. I didn't want to stay at it when I started but my carer always encouraged me to go to class whenever I was in bad humour.

Researcher: Do you think that your confidence would have grown to the same extent if you had

been in a regular classroom without computers?

Respondent: No, the computer has helped me.

Researcher: How was your confidence before you started the computer course?

Respondent: A wee bit low.

Researcher: What about mixing with people? How was it before and how is it now?

Respondent: I could mix a wee bit before the course; I had travelled to Dublin and back from Rehab on my own. Four friends died in Rehab and I would not want to go back there now.

Researcher: What about now, how is your interaction with people between the time you started the computer course and now?

Respondent: I am much better now. My carers also tell me that. I am looking for a job now and will help me get one at the reception at a community programme. I wouldn't have been able to get a job before.

Researcher: How is your reading and writing now?

Respondent: A wee bit better but some words are still difficult.

Researcher: How do you cope with reading and writing while using the computer?

Respondent: I type the words and check it with the ABC if I am not sure

Researcher: If the computer helps you that way, how will you then learn and know the word?

Respondent: If I see the word again, I'll recognise it. I enjoy using the computer. My carer is trying to get me a job placement and I'll be flying.

Researcher: What really helped you to improve your reading and writing, the current course you are studying or the previous one.

Respondent: This course helped me. I didn't like the other course. I used the computer to write a poem. put the poem in a book and it was launched at

Researcher: Really? That's a great achievement! Does using the computer make you believe that you can do more reading and writing?

Respondent: Oh aih.

Researcher: What about your personal life? Are there things you can do now that you felt you could not do before?

Respondent: Oh aih, I can now make cards for my friends' birthday.

Researcher: Could you do that at the start of the course?

Respondent: my tutor was helping me
but I will try to do it by myself now.

Researcher: All in all, has learning with the computer
helped you to believe more in yourself?

Respondent: Yes, I wouldn't have been able to do all
the things that I am doing now.

Researcher: Thank you so much for your time and
sharing all of this with me. I will use
the information in my research project but
like I informed you earlier, no names or
specific locations will be mentioned.

Respondent: Yes, whatever happens in these four walls
stays in these four walls. Ha! Ha!

Researcher: Thank you for teaching me that phrase and
thanks a million for your time.

Appendix 9 Interview – Learner 2

Profile of respondent: A 28 year old female learner of FETAC Level 3 English and Mathematics of African origin.

Researcher: My name is Uchenna Nwosu and as earlier explained, I am carrying out a research on adult learners and the computer. This is to determine how the computer affects adult learners. No names will be mentioned in this thesis but the information you provide will be used for research purposes only. Is it okay with you?

Respondent: Yes.

Researcher: What course are you currently studying?

Respondent: I am studying English and mathematics

Researcher: Do you have any reasons why you have chosen to study this course?

Learner: Yes, my reason is I want to know how to do basic maths

Researcher: What about the English?

Learner: I want to boost my English, that is speaking it and writing it better but the maths is my major problem.

Researcher: How are you getting on at the moment?

Learner: Very well, thank you.

Researcher: Can you explain what your mathematical ability was before you started the course?

Learner: Before I started the course, my mathematical ability was very poor, I couldn't do basic sums but at the moment, I am happy the way I'm going because I can do a lot of sums now.

Researcher: I understand you sometimes use computers to learn. How do you feel about learning with computers?

Learner: Learning with computers is okay and good but I personally find it very challenging because at times I go to a different page and I wouldn't know how to get back. To me learning with computers wouldn't be the best.

Researcher: So basically it makes you feel lost.

Learner: Yes, and I don't like it. It makes me confused.

Researcher: What if you had a software that would not make you feel lost. With guides and very easy to use?

Learner: If I had someone to guide me or a software that would not make me feel lost, I think I will like to use the computer.

Researcher: Do you think it has helped you in any way with your mathematical ability

Learner: Not really. I wouldn't say that it has helped me with my mathematical ability.

Researcher: You talked about the sums you learned earlier. You don't think the computer helped you in any way to learn that?

Learner: I would say the computer helped me just a little bit but basically, everything I learned came from the book. The computer almost frustrated me when I was using it for maths.

Researcher: Do you think using the computer in any way has helped you regarding your self-beliefs. That is beliefs you have about yourself?

Learner: Regarding my self-beliefs, I think the computer has built my confidence. The reason is that using the computer to do one or two things has made me proud and has helped me believe more in my self.

Researcher: So even though you feel it did not really assist you in learning sums, you feel that it still helped you build your confidence. Can you please explain further?

Learner: The reason is, even though the computer did not help me to learn my sums, it helps me to communicate to people back home. I

send emails to my family and friends and also to communicate directly to people I don't know through the web. I think the computer has helped me in that way.

Researcher: So the computer has helped you more for using email and internet than for learning maths?

Learner: Yes.

Researcher: Going to back to learning maths, did the computer make you feel you could solve sums or did it make you feel that you could not?

Learner: using the computer to solve sums actually scared me. The reason is I was frightened, I got lost in so many pages and I even thought I was going to break the computer. So it did not really help me.

Researcher: So you had the feeling that you were going to damage the computer?

Learner: Yes.

Researcher: Apart from learning, do you think using the computer has had any effect on your personal life?

Learner: Yes it has had a lot of impact on me. The reason is, it has built my confidence. Now I've had a lot of enthusiasm within myself. The fact that I could use a

computer means so much to me so it has built my confidence as a whole.

Researcher: How did you feel about yourself before you started learning basic maths?

Learner: I didn't like the way I couldn't solve basic maths, it was really a disgrace to me but now I can do it.

Researcher: What do you mean by disgrace? Was it a disgrace to your friends, in your house or to you as a person or other members of the community?

Learner: It was a disgrace to me as a person because my confidence was very low and secondly, it was a disgrace to me going out because I didn't know basic sums and some of my friends looked down on me. But now I am okay.

Researcher: Thank you very much for your time and your immense contribution to this research.

Interview Learner 2, Day 2.

Researcher: Thank you for agreeing to meet with me again. I wish to clarify a few things. At the last interview, you informed me that you did not enjoy learning maths with the computer because it made u feel

confused. Did you seek assistance from your tutor?

Learner: My tutor assisted me a few times but I felt that I would be disturbing the class by calling the tutor for help all the time.

Researcher: How long did you use the computer for maths?

Learner: Not for long since I didn't like it.

Researcher: Do you remember how many weeks or months it went on for?

Learner: It was once a week.

Researcher: Once again, thank you very much for your time.

Appendix 10 Interview Learner 3

Profile of respondent: A 45 year old female learner studying FETAC Level 3 English and Mathematics.

Origin: African.

Researcher: What motivated you to start this course?

Learner: I want to improve my reading and spelling skills

Researcher: When did you commence the course?

Learner: Since September last year

Researcher: How often do you use computers to learn?

Learner: Once a week because the course is once a week.

Researcher: Did you or did you not enjoy learning with the computer?

Learner: I enjoyed it very much.

Researcher: Would you like to use it to learn again in the future?

Learner: Oh yes, I even still use it at home.

Researcher: Did the computer assist you with class exercises?

Learner: Yes but I sometimes used my own brain.

Researcher: Can you please explain further? What do you mean by using your own brain?

Learner: I used the computer only when I need help. It is better to give it a try first. If you get it with your brain, it makes you to feel good. You can know immediately whether you got it right or wrong.

Researcher: Do you think you would have been able to learn without the need for the computer?

Learner: No, the computer helped me a lot but it is good to use both the computer and your brain. If you depend on only the computer, it can make you lazy. If you go outside and the computer is not with you, you may not be able to calculate things but if you use your brain first, it will help you.

Researcher: Are you referring to your maths course?

Learner: Yes but the same happens with the reading and spelling. It is good to use both to learn.

Researcher: Did the computer help you with the reading and spelling?

Learner: Yes, it helped me. The websites we used are for beginners and I was practicing at home too.

Researcher: How did learning reading and spelling with the computer make you feel afterwards?

Learner: I felt much better. I can now help my children with their homework.

Researcher: Has learning English with the computer made you feel that you are now better at reading and writing?

Learner: Yes it has made feel much better than before. We learned to join words together; we learned past tense and past participle.

Researcher: You also learned past participle?

Learner: Yes. Past participle.

Researcher: Let us look at learning with the computer and without the computer, which do you believe is more helpful for your learning reading and writing.

Learner: The computer. I have been learning English for ages but this last course with the computer has promoted me so much with my achievement.

Researcher: What do you mean by promoted you?

Learner: It promotes you from a different level to another. I can now speak and read much better than before. I used to be uncomfortable about speaking but I can now help out with some things in church. I am not too shy when I meet people that speak good English.

Researcher: In the future, what would you advice, to learn speaking and spelling with the computer or without the computer?

Learner: I prefer both of them. That way your brain will not be lazy. You have to keep exercising it.

Researcher: Could you use the computer alone or did you have any assistance?

Learner: Our teacher used to help us. She is very good.

Researcher: Going back to the maths, how did you find learning it with the computer?

Learner: I liked it very much but like I said, it is better try it with your brain first. It is very good to use both your brain and the computer.

Researcher: Did using the computer to learn maths make you feel more successful at the exercises?

Learner: Yes it did. That is the more reason why I decided to use my brain more. I was afraid that if I am outside without a computer that I will be in trouble. Using my brain and the computer together helped me a lot. I use to use the computer when I need some practice, then I use my brain to try some calculations.

Researcher: Did using the computer for maths exercises make you feel more confident about what you can achieve on your course?

Learner: Yes it did but using my brain made me feel more confident than using the computer for calculations.

Researcher: Looking at your learning with the computer, do you now believe more in yourself or did you always believe you can achieve a lot.

Learner: I had the hope but now I really feel that I can achieve more. I want to get my leaving certificate in the future.

Researcher: Thank you very much for your time. I really appreciate this.

Appendix 11 Interview - Learner 4

Profile of respondent: A 26 year old female learner studying computer literacy and English at FETAC Level 3.

Origin: Irish.

Researcher: Thank you for agreeing to this interview. As I informed you earlier, your name will not be mentioned in the research. Only the information you provide will be used for research purposes only. How are you finding the course you are currently studying?

Learner: I like it very much. I had done a course three years ago but I really like this one. I didn't like the other course but I completed it. The co-ordinator was amazed that I stuck it out till the end. I don't believe in giving up. I never have and I never will. I always finish whatever I start. If you give up, you'll lose confidence. I have a laptop I bought years ago but I would like to buy a new laptop.

Researcher: What course were you doing before?

Learner: It was an English course but it was very boring. I have been able to get a lot of information now. I was born with cerebral paresis and had an operation when I was a

child because the doctor thought he knew what was wrong with me. If I had the right doctor my life wouldn't be the same.

Researcher: Were you able to attend primary school?

Learner: Yes, I did but it was very difficult. Some of the other kids used to try to bully me.

Researcher: What about secondary school?

Learner: No, I could not attend secondary school and I wish I had. I later went to special school. We didn't learn anything there and I hated it.

Researcher: How have you been able to cope with reading and writing and mathematics?

Learner: The course I am doing now is helping me. I also read a lot of books.

Researcher: That is great. How do you find the words?

Learner: I read them very slowly but my uncle said it will help. He gave me a computer book but I only get to read them on Saturdays and Sundays. I am very tired during the week, after the course and shopping and doing some work in the house.

Researcher: How are you finding the computer book? Can you hear the words being read out or how does it work?

Learner: I touch the words and it reads them as I go along. I like it but I don't read it all the time. I have loads of other books. I can

Researcher: What about using the computer in class? How are you coping with that and reading and writing?

Learner: I break the words up. And I use the ABC to check the spellings. I have also used some games. I like them. I can do a lot with the computer. I read books off my mum's Nintendo and I also use brain training. It is good for the mind. I have an email address.

Researcher: Does using the computer make you believe you are capable of more or have you always believed in your capability?

Learner: Some people look at me and judge me but I can do a lot more than people anticipate. I always know what I want and what is right for me; even when someone else says no, I insist. I know and understand myself. The computer has opened up more avenues for me. I have an email address. I use the computer to download photos from my digital camera.

Researcher: Fantastic. What about your reading skills? Do you think that the computer

makes it easier for you to learn words and read better?

Learner: Yes it has helped me. I also use the internet to get a lot of information; I find the computer very fascinating.

Researcher: Has using computer technology helped you believe more in what you can do or did you always believe that you can do all that you are currently doing on your course and at home.

Learner: Yes, definitely. I enjoy using it and I feel I can do more, that's why I want to buy another laptop because the one I have now is very old.

Researcher: Thank you so much for your time and all the information you have provided.

Appendix 12 Interview Tutor 1

Course Taught: Computer Literacy and Basic English.

Researcher: I would like to thank you for agreeing to participate in this interview. I really appreciate it. I earlier found out that you are teaching the FETAC Level 3 computer course, may I ask what level the learners are at by the time they commence the course?

Tutor: Beginners level. Most of them had no knowledge of computers.

Researcher: What categories of learners do you have in the group at the moment, for example, do they possess low literacy or are some of the learners with disabilities?

Tutor: They are all learners with disabilities and a good number of them have low literacy. One of the learners actually came straight from a mental institution where he had been for 24 years.

Researcher: How many do you have in the group and how many have low literacy?

Tutor: There are 10 learners, 2 are not too bad, the others have low literacy but some of them are better than the others.

Researcher: How would you describe your observations about their self-esteem at the start of the course?

Tutor: Some of them had low self-esteem and low self-confidence but some of them were confident enough.

Researcher: What about the learner who came straight from the mental institution, what do you think about his confidence and self-esteem?

Tutor: He is fine. He had gone through some preparatory programme before he came out so I believe that helped him an awful lot.

Researcher: What do you think about their self-confidence at the moment? Have you observed any improvements from the start of the course to date?

Tutor: Oh yes, definitely. Some of the learners have grown in confidence and the way they feel about themselves but some are still quite the same.

Researcher: What percentage do you think have grown in confidence and the way they feel about themselves?

Tutor: About 50-50.

Researcher: Do you mean that 50% have shown some improvement and 50% have not.

Tutor: Yes, the self-esteem of 50% of them have improved tremendously but there is still a long way to go. And some have not really shown any improvement.

Researcher: What do you believe is responsible for the improvement in the way they feel about themselves? Is it the education or is it learning with computers?

Tutor: Both of them have contributed.

Researcher: If they were learning without computers, would the same amount of improvement have taken place? What do you think?

Tutor: No, I believe learning with computers has contributed hugely. It makes it easier for them to learn which would have been more difficult in the normal classroom. Learning is made possible via verbal communication and the computer. The computer assists with spellings which makes it easier for the learners.

Researcher: What about the reading and writing skills of the learners? Have you noticed any improvements?

Tutor: Their reading and writing is improving, the skills are used and improved daily from working with the computer although

some of the learners are still struggling. Lack of literacy is limiting them.

Researcher: What about their beliefs about their capabilities on the course, what are your observations? Any improvements?

Tutor: Definitely some improvements. A lot of improvement with some learners and some learners have only slightly improved.

Researcher: Would it be possible to quantify that in terms of percentages?

Tutor: About 70% of them now believe more in their capabilities and about 30% only slightly believe.

Researcher: What are your observations about their attitudes to learning with the computer?

Tutor: Anxious from the beginning till now.

Researcher: Is that positively anxious or negatively?

Tutor: Positively anxious. They enjoy working with the computers very much.

Researcher: Can you comment about their self-beliefs in general between when they started and now? Please kindly state how many have shown any improvements if any.

Tutor: Overall, 2 of them have increased much more, about 4 have improved slightly and the other 4 are still about the same.

Researcher: What about their interactions with each other?

Tutor: Much more improved than when they started the course. They've been on the course for about 5 months now. One of the learners still likes to keep very much to herself sometimes but this may be due to her physical disability.

Researcher: What do you think is responsible for this interaction? Is it being on the course together for this length of time or do you think using the computer influences it.

Tutor: Both. They have been learning together for that length of time. Some of them sometimes share or show each other information on the computer especially when they are using the internet.

Researcher: That's it for now. Thank you very much for making out the time to discuss with me.

Appendix 13 Interview Tutor 2

Course Taught: Basic English and Basic Mathematics

Researcher: Thank you for making the time to attend this discussion. The interview will assist in gathering information on how adult basic education learners learn with technology and primarily on how technology impacts on their self-beliefs. And by self-beliefs, I mean, issues such as self-confidence, self-esteem and self-efficacy of the learners. I would like to assure you that my findings will be presented anonymously. Your name or names of any persons or education centres mentioned will not be stated in the research findings. Your honest opinion and observations would be greatly appreciated.

Tutor: Okay.

Researcher: I understand that you teach basic mathematics, reading and writing and computer literacy.

Tutor: Yes.

Researcher: With the reading and writing group, can I ask how the learners appear to you at the start of the course? That is their demeanour?

Tutor: Most of them were nervous.

Researcher: Did this group use computers in class?

Tutor: Yes, They used BBC Skills Wise website

Researcher: How did the learners find it?

Tutor: Nervous and afraid at the beginning but they later relaxed and started to enjoy it. It was game-like and was something different. I used it alongside the usual classroom work and they could choose to work on any of the sections they wanted to.

Researcher: Why do you think they were nervous?

Tutor: None of them had used the computer before and they were afraid of breaking the computer.

Researcher: What were your observations while they were working at tasks on the site?

Tutor: Some of them chose crossword puzzles even though they wouldn't have chosen to work with crosswords in the classroom.

Researcher: Were they successful at their tasks?

Tutor: Sometimes they were, and the fact that they knew immediately whether the answer was right or wrong helped them. If they got the answer wrong, they could try again.

Researcher: Do you think it made them feel more successful?

Tutor: I believe it did even though some were a game of luck. They enjoyed it and looked forward to working with it again. One of the learners had informed me that he could now use the ATM and I believe that the online games may have helped him in addition to the classroom work.

Researcher: Do you think there was any impact on the way they felt about themselves?

Tutor: I think it gave them a sense of accomplishment.

Researcher: What about their confidence?

Tutor: Their confidence had grown by the end of the course. One of the learners commented that she will now be able to help her child with her homework.

Researcher: What do you feel is responsible for the growth in confidence?

Tutor: Their reading and writing skills had improved.

Researcher: What do you think improved their reading and writing skills? Was it the use of technology or learning in the normal classroom environment?

Tutor: Both. They used both as they went along.

Researcher: What about their self-esteem? Any observations?

Tutor: It was a 10 week course so there was not enough time to accurately assess that. But the learners' confidence had grown compared to when they started the course and they were more comfortable working with the computer as the course progressed. They were no longer nervous.

Researcher: What about the computer literacy course? How did the learners feel at the start of the course?

Tutor: They were also nervous and afraid. 5 out of 10 of the learners dropped out the next day but the remaining 5 eventually relaxed and completed the course.

Researcher: Do you know what was responsible for the huge drop out?

Tutor: I am not sure because it was the very next day but it may have been that the course did not suit them or the fear of using computers.

Researcher: How did the 5 remaining learners find the computer course?

Tutor: They really enjoyed it. Two of the learners had literacy problems but familiarity with the rest of the group helped them to cope with the course.

Researcher: How did they cope with actual reading and writing?

Tutor: They used typing and spell check which helped.

Researcher: What was their confidence like at the start of the course?

Tutor: It seemed low for some but some were okay. They were more confident by the end of the course but the time was too short.

Researcher: How long was the course?

Tutor: 6 weeks.

Researcher: From your observations, do you believe they felt more capable of completing tasks on the course?

Tutor: When they started enjoying the course, they became quite eager to work on tasks especially tasks involving internet and email. They felt more capable of completing tasks, they could link what they were being taught with what they could see on the screen and that helped them to remember.

Researcher: In general, what do you think about the way they felt about themselves compared to the start of the course?

Tutor: Major changes are hard to notice in a short course but I believe they felt more confident and were more eager to learn. The learners with low literacy also seemed more confident and more relaxed because

they could use the spell check to correct their work.

Researcher: Okay. Thank you very much for your time. I appreciate it.

Appendix 14 Focus Group Discussions

Profile of group: Ten learners made up of learners from two of the participating groups. 6 are participating in a computer course and 4 are learning Basic English.

Day 1

My name is Uchenna Nwosu. I would like to thank you for agreeing to participate in this group discussion. Like I informed you earlier, this discussion is solely for research purposes on adults learning with computer technology, how it impacts on your capability to successfully complete your course, whether it affects your beliefs about what you can do. Would it be okay if I take down notes during the discussion, no names will be mentioned in this research as it is strictly anonymous.

Output from discussions:

1. Learners stated that they are enjoying their courses so far and look forward to completion.

2. Learners who have just completed a basic English course expressed that they would like to use the computer again to learn.
3. Learners talked about class projects such as searching the internet for specific information.
4. Learners excitedly talked about their accomplishments on their projects so far.
5. Learners talked about individual projects such as:
 - Searching for information about fishing
 - Searching for information about Museums
 - Searching for information about Lourdes
 - Searching for information about music

Day 2

1. Learners expressed that they find learning with technology enjoyable.
2. Learners talked happily about how they use the various applications of computer technology in the classroom. For example:
 - Learners type and present information
 - Learners develop knowledge through information on the internet
 - Learners stated that they like being able to send emails to friends and family

- Learners appreciate the acquisition of skills through the use of computer technology
3. Some learners of basic literacy however stated that they sometimes got confused while using the computer for exercises but that they got some help from the tutor.
 4. A male learner particularly talked about technical aspects of technology change and advancement.

Day 3

- 1 Computer literacy learners talked about opportunities presented to them by technology such as being able to get a job and displayed anxiety at the prospect of work experience which will soon be commenced by them.
- 2 Some learners said it feels good to be able to do something for the community.
- 3 One of the learners stated that she would not have been able to achieve what she has achieved so far, such as getting her own flat and taking care of herself after being locked up for more than 21 years if not for the course.
- 4 A learner on the computer literacy course talked about how attending the course everyday has helped

her compared to a previous computer course she had done which was once only a week.

- 5 A learner with physical disability talked about how the computer literacy course has helped her. She went on to talk about how she feels about her disability and the limitations that are daily faced by her. She talked about not being able to do a lot of things on her own and how bad some people have made her feel. The computer course has made her believe that she is capable of doing more.

Day 4

1. A learner commented that they were very nervous at the start of the course but relaxed as time went on
2. Some of the group agreed with this.
3. Discussions were also centred around how learners use Microsoft word and "ABC".

Day 5

1. The learners talked about finishing the course soon and said that they are not nervous because the world is computer based and the course has prepared them for the life ahead.

2. A learner said that the more knowledge has made her feel good. The rest of the group agreed that the same applies to them.
3. A male learner talked again about the technical aspects of computer technology.
4. Learners said the internet is the part of the course which they have enjoyed the most.

Learners talked about how fascinating they find the computer. They are fascinated by the vast amount of information it hold on virtually everything.

Appendix 15

Questionnaire 1 Findings: Construct 1 & 2 Q1 To Q2 and Q3 To Q7

	Q1	Q2	Total	Construct 1 (Mean)	Q3	Q4	Q5	Q6	Q7	Total	Construct 2 (Mean)
Respondent 1	4	4	8	4	4	4	3	4	4	19	3.800
Respondent 2	3	3	6	3	4	3	5	5	3	20	4.000
Respondent 3	4	5	9	4.5	5	5	5	4	3	22	4.400
Respondent 4	4	4	8	4	5	5	5	5	3	23	4.600
Respondent 5	5	5	10	5	4	3	3	4	4	18	3.600
Respondent 6	4	4	8	4	5	4	4	4	4	21	4.200
Respondent 7	4	5	9	4.5	5	5	5	4	3	22	4.400
Respondent 8	4	5	9	4.5	5	5	5	4	3	22	4.400
Respondent 9	4	5	9	4.5	5	5	5	5	3	23	4.600
Respondent 10	4	4	8	4	4	4	4	4	3	19	3.800
Respondent 11	5	4	9	4.5	5	3	3	3	5	19	3.800
Respondent 12	5	5	10	5	4	4	4	4	4	20	4.000
Respondent 13	5	4	9	4.5	5	4	5	4	5	23	4.600
Respondent 14	4	3	7	3.5	3	4	2	4	3	16	3.200
Respondent 15	4	4	8	4	3	3	3	3	3	15	3.000
Respondent 16	3	3	6	3	2	2	2	4	3	13	2.600
Respondent 17	4	4	8	4	4	4	4	4	4	20	4.000
Respondent 18	4	4	8	4	4	3	3	4	3	17	3.400
Respondent 19	5	5	10	5	5	4	5	5	5	24	4.800
Respondent 20	5	5	10	5	3	4	3	3	3	16	3.200

	Q1	Q2	Total	Construct 1 (Mean)	Q3	Q4	Q5	Q6	Q7	Total	Construct 2 (Mean)
Respondent 21	4	5	9	4.5	4	3	4	4	4	19	3.800
Respondent 22	5	5	10	5	5	4	5	5	5	24	4.800
Respondent 23	5	4	9	4.5	5	4	3	4	5	21	4.200
Respondent 24	4	4	8	4	4	5	4	4	4	21	4.200
Respondent 25	4	4	8	4	4	4	4	3	3	18	3.600
Respondent 26	5	4	9	4.5	5	4		5	5	19	5.000
Respondent 27	5	4	9	4.5	4	4	4	4	5	21	4.200
Respondent 28	4	4	8	4	4	3	3	3	4	17	3.400
Respondent 29	4	4	8	4	5	5	5	5	4	24	4.800
Respondent 30	5	4	9	4.5	5	5	5	5	4	24	4.800
Respondent 31	5	5	10	5	3	4	3	4	4	18	3.600
Respondent 32	4	4	8	4	4	3	5	4	5	21	4.200
Respondent 33	2	3	5	2.5	2	2	2	2	2	10	2.000
Respondent 34	5	5	10	5	4	5	5	2	5	21	4.200
Respondent 35	5	5	10	5	5	4	4	4	4	21	4.200
Total	150	149	299	149.5	147	137	134	139	134	691	139.4
Mean	4.286	4.257	8.543	4.271	4.200	3.914	4.000	3.971	3.829	19.743	3.983
Median	4	4	9	4.5	4	4	4	4	4	20	4.2
Mode	4	4	8		5	4	5	4	3	21	4.2
Standard Deviation	0.710	0.657	1.221		0.610	0.853	1.013	0.785	0.857	3.202	0.664
Variance	0.504	0.432	1.491		0.373	0.728	1.027	0.617	0.734	10.255	0.441
Count	35	35	35	35	35	35	34	35	35	35	35

Appendix 16

Questionnaire 2 Findings: Construct 1, Q1 To Q2

	Q 1	Q 2	Sub Total	Mean/Construct 1	Difference B/w Overall SB
Respondent 1	5	5	10	5	-1
Respondent 2	4	4	8	4	-0.5
Respondent 3	5	5	10	5	-1
Respondent 4	5	5	10	5	-2
Respondent 5	5	3	8	4	-0.5
Respondent 6	4	4	8	4	0.5
Respondent 7	3	4	7	3.5	-0.5
Respondent 8	5	4	9	4.5	-1
Respondent 9	5	5	10	5	0
Respondent 10	5	5	10	5	-2
Respondent 11	5	4	9	4.5	-0.5
Respondent 12	4	4	8	4	0
Respondent 13	5	4	9	4.5	-1.5
Respondent 14	5	5	10	5	-0.5
Respondent 15	5	5	10	5	0
Respondent 16	5	5	10	5	0
Respondent 17	4	5	9	4.5	-0.5
Respondent 18	5	5	10	5	-1
Respondent 19	5	5	10	5	-3
Respondent 20	4	4	8	4	-1
Respondent 21	3	2	5	2.5	-0.5

	Q 1	Q 2	Sub Total	Mean/Construct I	Difference B/w Overall SB
Respondent 22	5	5	10	5	-2.5
Respondent 23	5	5	10	5	-1
Respondent 24	5	5	10	5	0
Respondent 25	5	5	10	5	-0.5
Respondent 26	5	5	10	5	0
Respondent 27	5	5	10	5	-1.5
Respondent 28	5	5	10	5	-1
Respondent 29	5	5	10	5	0
Respondent 30	4	4	8	4	-0.5
Respondent 31	5	4	9	4.5	0.5
Respondent 32	4	4	8	4	0
Respondent 33	5	5	10	5	-1
Respondent 34	5	5	10	5	0
Respondent 35	5	5	10	5	-1
Respondent 36	4	5	9	4.5	0.5
Respondent 37	5	5	10	5	0
Respondent 38	5	5	10	5	-0.5
Respondent 39	5	4	9	4.5	0.5
Respondent 40	5	5	10	5	0
Respondent 41	4	4	8	4	0
Respondent 42	5	5	10	5	-1.5
Respondent 43	2	2	4	2	2
Respondent 44	3	3	6	3	1.5
Actual Total	202	197	399	199.5	-22.5
Mean	4.591	4.477	9.068	4.534	-0.511
Median	5	5	10	5	-0.5
Standard Deviation	0.726	0.792	1.421	0.710	0.931
Variance	0.526	0.627	2.018	0.505	0.866
Mode	5	5	10	5	-0.989
Count	44	44	44	44	44

Appendix 17

Questionnaire 1 Question 14

“Do you often wish you could believe more in yourself?”

Respondents	Q14 - Often wish they believe
Respondent 1	Yes very often
Respondent 2	Believe in self
Respondent 3	Believe in self
Respondent 4	Yes very often
Respondent 5	Yes very often
Respondent 6	Yes very often
Respondent 7	Yes very often
Respondent 8	Yes very often
Respondent 9	Believe in self
Respondent 10	Very much believe in self
Respondent 11	Yes very often
Respondent 12	Yes but not very often
Respondent 13	Yes very often
Respondent 14	Yes very often
Respondent 15	Yes very often

Respondent 16	Yes very often
Respondent 17	Yes but not very often
Respondent 18	Yes very often
Respondent 19	Believe in self
Respondent 20	Yes very often
Respondent 21	Yes but not very often
Respondent 22	Believe in self
Respondent 23	Yes very often
Respondent 24	Yes very often
Respondent 25	Yes very often
Respondent 26	Yes but not very often
Respondent 27	Believe in self
Respondent 28	Yes but not very often
Respondent 29	Yes very often
Respondent 30	Yes but not very often
Respondent 31	Yes very often
Respondent 32	Yes very often
Respondent 33	Yes but not very often
Respondent 34	Yes very often
Respondent 35	Yes but not very often

Appendix 18

Questionnaire 1 Question 15 - Feelings about learning amongst other learners

Respondent 1	Like very much, to improve English and confidence
Respondent 2	Like very much
Respondent 3	Like very much
Respondent 4	
Respondent 5	Like-Think a lot of us are shy
Respondent 6	Like very much-To hear others views
Respondent 7	Not sure
Respondent 8	Not sure
Respondent 9	Like very much
Respondent 10	Like very much
Respondent 11	Like very much-meeting new people
Respondent 12	Like very much-to help communication
Respondent 13	Like very much-Learn from people
Respondent 14	Like very much-Can ask for help
Respondent 15	Like very much-Interesting
Respondent 16	Not sure
Respondent 17	Like
Respondent 18	Not sure-Self-conscious
Respondent 19	Like very much
Respondent 20	Not sure-Has personal needs.Prefers one-one
Respondent 21	Like very much-Can ask for help
Respondent 22	Like very much-enjoys the atmosphere can learn from each other
Respondent 23	Like-Can learn from others
Respondent 24	Like very much-Team player
Respondent 25	Like-Can learn from others

Respondent 26	Like-To get up to other peoples levels
Respondent 27	Like very much-To hear others views
Respondent 28	Not sure-feels he is too slow for others
Respondent 29	Like very much
Respondent 30	Like-Keeps class interesting
Respondent 31	Like very much-gets on with other people
Respondent 32	Like very much-likes to learn amongst others
Respondent 33	Don't like-Fear of embarrassing self amongst strangers
Respondent 34	Like- Likes to work with people
Respondent 35	Not sure-Feels embarrassed to keep asking questions that she thinks she should know

Appendix 19

Q16 - Learning independently with the computer

Respondent 1	Like very much
Respondent 2	Do not like
Respondent 3	Do not like due to reading & witing
Respondent 4	Do not like-Reading and writing
Respondent 5	Like very much-Loves it, he's flying
Respondent 6	Like-Getting more information
Respondent 7	Like vey much
Respondent 8	Do not like
Respondent 9	Do not like
Respondent 10	Like
Respondent 11	Like
Respondent 12	Like very much-to help communicate via email
Respondent 13	Like very much-Helpful
Respondent 14	Like very much-But not as good as working with a group
Respondent 15	Like-Can work at own pace
Respondent 16	Like-but prefers to learn with tutor
Respondent 17	Do not like-not computer oriented
Respondent 18	Like-Worth doing
Respondent 19	Like very much-Will help computer skill
Respondent 20	Like-Computer may not talk back to provide help
Respondent 21	Like-Immediate feedback
Respondent 22	Like very much-have done quizzes in class
Respondent 23	Like
Respondent 24	Like very much-Gives u time to study on your own
Respondent 25	Like-Can help with spelling
Respondent 26	Like
Respondent 27	Like-but also likes to learn 1-1 with tutor
Respondent 28	Like--helps me do different things
Respondent 29	Like-Likes computer
Respondent 30	Like-sense of achivement

Respondent 31	Like very much-Has a computer at home
Respondent 32	Like-Likes computer
Respondent 33	Like-Would also like 1-1 with tutor
Respondent 34	Do not like-Likes computer but prefers to learn with a tutor
Respondent 35	Likes-Because I can learn at my own pace

Appendix 20

Questionnaire 1 Q17 - Fears of limitations and Description

Respondent 1	Fears from Lack of English
Respondent 2	Fears from lack of reading and writing
Respondent 3	Fears from lack of reading and writing
Respondent 4	Cannot not read and write
Respondent 5	Jumpin the gun
Respondent 6	No fears
Respondent 7	No fears
Respondent 8	
Respondent 9	Reading and writing
Respondent 10	
Respondent 11	No fears
Respondent 12	No fears
Respondent 13	No fears
Respondent 14	Yes-Shy
Respondent 15	Fears from Lack of education-cannot look for a job and make friends
Respondent 16	
Respondent 17	Yes-Lack of computer skills
Respondent 18	No fears
Respondent 19	
Respondent 20	Yes-having no fixed home to call one's own
Respondent 21	Fears-from language
Respondent 22	
Respondent 23	No fears
Respondent 24	Afraid of not being able to do things
Respondent 25	Yes-Spelling
Respondent 26	
Respondent 27	Yes-No confidence
Respondent 28	Yes
Respondent 29	Left school early
Respondent 30	
Respondent 31	Words are too difficult

Respondent 32	Sometimes think not good at things
Respondent 33	Yes-lack of early education
Respondent 34	Would like to work but can't now- cos of education
Respondent 35	No fears

Appendix 21 Questionnaire 1 – Capability to Learn, Age, Nationality & Economic Status

	Q23-Capability to learn	Q24-M/F	Q25-Economic Status	Q26-Nationality	Q28-Age
Respondent 1	Good	F	SW	African	35-44
Respondent 2	Slow learner	M	SW	Irish-Traveller	45-64
Respondent 3	Slow	M	Employed PT	Irish	35-44
Respondent 4	Slow	M	SW	Irish	45-64
Respondent 5	Good	M	Non	Irish	45-64
Respondent 6	Very Good	F	Employed	Irish	45-64
Respondent 7	Very Good	M	SW/Employed PT	Irish	35-44
Respondent 8		F	Employed PT	Irish	35-44
Respondent 9	Slow	M	SW	Irish	45-64
Respondent 10			Employed PT	African	25-34
Respondent 11		F	Employed	Irish	25-34
Respondent 12		F	Employed PT	Irish	25-34
Respondent 13	Very Good	F	SW	African	25-34
Respondent 14	Needs more confidence	F	SW	Other-English	18-24
Respondent 15	Has realised that hes	F	Other-Full time	Other-English	35-44
Respondent 16	Very Capable	F	Employed PT	Irish	35-44
Respondent 17	Competitive and Ambitious	F	SW	Irish	45-64
Respondent 18	Ok	M	SW	Irish	18-24
Respondent 19	Okay	M	SW	Irish	35-44
Respondent 20	Good but needs	M	SW	Irish	25-34
Respondent 21		M	SW	African	25-34
Respondent 22	Okay	F	Other-Non	Other-A	35-44
Respondent 23	Difficult sometimes	F	SW	Non Irish-EU	25-34
Respondent 24	Sometimes hard	M	Employed FT	Irish	35-44
Respondent 25	Better now than at	M	SW	Irish	45-64
Respondent 26	Slower than most	M	Employed PT	Irish	35-44
Respondent 27	Lacks dedication	F	Employed PT	Irish	45-64
	Q23-Capability to learn	Q24-M/F	Q25-Economic Status	Q26-Nationality	Q28-Age

Respondent 28	Slow learner	M	Other-Not working	Irish	45-64
Respondent 29		M	SW	Irish	25-34
Respondent 30	picks up information	M	Other-employed	Irish	35-44
Respondent 31	Okay but needs help	F	SW	Irish=travveller	35-44
Respondent 32	slow but gets there	M	SW	Irish	25-34
Respondent 33	50-50	M	SW	Irish	35-44
Respondent 34	I set goals	F	SW	Irish	35-44
Respondent 35	Okay but needs guidance	F	Training Allowance	Irish-Travveller	18-24

Appendix 22

Questionnaire 2 Findings: Construct 2, Q3 To Q7

	Q 3	Q 4	Q 5	Q 6	Q 7	Sub Total	Mean/Construct 2	Difference B/w Overall SB
Respondent 1	4	4	4	4	4	20	4.000	0.000
Respondent 2	5	4	4	5	5	23	4.600	-1.100
Respondent 3	4	4	4	4	4	20	4.000	0.000
Respondent 4	5	5	5	5	5	25	5.000	-2.000
Respondent 5	4	4	4	4	4	20	4.000	-0.500
Respondent 6	4	4	4	4	4	20	4.000	0.500
Respondent 7	3	3	4	2	2	14	2.800	0.200
Respondent 8	4	4	5	3	4	20	4.000	-0.500
Respondent 9	5	5	4	5	5	24	4.800	0.200
Respondent 10	3	3	3	4	4	17	3.400	-0.400
Respondent 11	4	4	4	4	4	20	4.000	0.000
Respondent 12	4	4	4	4	4	20	4.000	0.000
Respondent 13	2	3	3	3	4	15	3.000	0.000
Respondent 14	4	4	4	5	5	22	4.400	0.100
Respondent 15	5	5	5	5	5	25	5.000	0.000
Respondent 16	5	5	5	5	5	25	5.000	0.000
Respondent 17	4	5	4	4	5	22	4.400	-0.400
Respondent 18	4	4	4	3	5	20	4.000	0.000
Respondent 19	4	4	4	4	5	21	4.200	-2.200
Respondent 20	5	4	4	4	5	22	4.400	-1.400
Respondent 21	3	3	3	2	1	12	2.400	-0.400
Respondent 22	5	4	4	3	4	20	4.000	-1.500
Respondent 23	5	4	4	4	4	21	4.200	-0.200
Respondent 24	5	5	5	5	5	25	5.000	0.000
Respondent 25	4	4	3	3	5	19	3.800	0.700
Respondent 26	5	5	5	4	5	24	4.800	0.200
Respondent 27	5	5	4	4	5	23	4.600	-1.100
Respondent 28	5	3	4	4	5	21	4.200	-0.200
Respondent 29	5	5	5	5	5	25	5.000	0.000
Respondent 30	5	3	3	3	4	18	3.600	-0.100

	Q 3	Q 4	Q 5	Q 6	Q 7	Sub Total	Mean/Construct 2	Difference B/w Overall SB
Respondent 31	5	4	4	4	4	21	4.200	0.800
Respondent 32	4	4	4	4	4	20	4.000	0.000
Respondent 33	4	4	4	4	4	19	3.800	0.200
Respondent 34	5	4	4	5	5	23	4.600	0.400
Respondent 35	3	3	3	3	5	19	3.800	0.200
Respondent 36	5	5	5	5	5	25	5.000	0.000
Respondent 37	5	5	5	5	5	25	5.000	0.000
Respondent 38	4	4	4	4	4	20	4.000	0.500
Respondent 39	4	3	3	4	5	19	3.800	1.200
Respondent 40	4	3	3	3	4	17	3.400	1.600
Respondent 41	4	4	4	4	4	19	3.800	0.200
Respondent 42	3	5	5	5	3	21	4.200	-0.700
Respondent 43	2	2	2	2	2	10	2.000	2.000
Respondent 44	4	5	5	5	4	23	4.600	-0.100
Actual Total	185	178	175	177	189	904	180.8	-3.8
Mean	4.205	4.045	3.977	4.023	4.295	20.545	4.109	-0.086
Median	4	4	4	4	4	20	4	0
Standard Deviation	0.823	0.776	0.762	0.876	0.904	3.406	0.681	0.789
Variance	0.678	0.603	0.581	0.767	0.818	11.603	0.464	0.622
Mode	4	4	4	4	5	20	4	0
Count	44	44	44	44	44	44	44	44

Appendix 23

Questionnaire 2 Findings: Construct 3, Q8 To Q11

	Q 8	Q 9	Q 10	Q 11	Sub Total	Mean/Construct 3	Difference B/w Overall SB
Respondent 1	4	4	4	4	16	4	0
Respondent 2	4	4	5	5	18	4.5	-1
Respondent 3	4	5	4	4	17	4.25	-0.25
Respondent 4	5	5	5	4	19	4.75	-1.75
Respondent 5	4	3	4	3	14	3.5	0
Respondent 6	4	4	4	4	16	4	0.5
Respondent 7	3	3	2	4	12	3	0
Respondent 8	3	4	3	4	14	3.5	0
Respondent 9	5	5	5	5	20	5	0
Respondent 10	3	3	3	4	13	3.25	-0.25
Respondent 11	5	5	4	5	19	4.75	-0.75
Respondent 12	4	4	4	4	16	4	0
Respondent 13	3	4	4	3	13	3.25	-0.25
Respondent 14	5	5	4	5	19	4.75	-0.25
Respondent 15	5	4	5	5	19	4.75	0.25
Respondent 16	5	5	5	5	20	5	0
Respondent 17	5	4	4	4	17	4.25	-0.25
Respondent 18	4	4	4	4	16	4	0
Respondent 19	4	3	4	4	15	3.75	-1.75
Respondent 20	4	4	4	4	16	4	-1
Respondent 21	1	1	2	3	7	1.75	0.25
Respondent 22	3	4	3	3	13	3.25	-0.75
Respondent 23	4	4	4	4	16	4	0

	Q 8	Q 9	Q 10	Q 11	Sub Total	Mean/Construct 3	Difference B/w Overall SB
Respondent 24	5	5	5	4	19	4.75	0.25
Respondent 25	5	5	5	4	18	4.5	0
Respondent 26	4	5	4	4	17	4.25	0.75
Respondent 27	4	5	4	4	17	4.25	-0.75
Respondent 28	5	5	4	3	17	4.25	-0.25
Respondent 29	5	5	5	5	20	5	0
Respondent 30	2	4	5	2	13	3.25	0.25
Respondent 31	5	4	5	4	18	4.5	0.5
Respondent 32	4	4	4	4	16	4	0
Respondent 33	4	3	4	5	16	4	0
Respondent 34	2	5	5	3	15	3.75	1.25
Respondent 35	5	5	5	5	20	5	-1
Respondent 36	5	5	5	5	20	5	0
Respondent 37	5	5	5	4	19	4.75	0.25
Respondent 38	4	5	5	3	17	4.25	0.25
Respondent 39	5	5	5	4	18	4.5	0.5
Respondent 40	5	5	5	5	20	5	0
Respondent 41	4	5	4	3	16	4	0
Respondent 42	4	4	4	5	17	4.25	-0.75
Respondent 43	2	4	4	5	15	3.75	0.25
Respondent 44	4	4	4	5	17	4.25	0.25
Actual Total	179	188	183	180	730	182.5	-5.5
Mean	4.068	4.273	4.159	4.091	16.591	4.148	-0.125
Median	4	4	4	4	17	4.25	0
Standard	0.998	0.845	0.776	0.772	2.653	0.663	0.579
Variance	0.995	0.715	0.602	0.596	7.038	0.440	0.336
Mode	4	5	4	4	16	4	0
Count	44	44	44	44	44	44	44

Appendix 24

Questionnaire 2 Findings: Construct 4, Q12 To Q13

	Q 12	Q 13	Sub Total	Mean/Construct 4	
Respondent	4	4	8		4
Respondent	4	3	7		3.5
Respondent	4	4	8		4
Respondent	3	3	6		3
Respondent	4	3	7		3.5
Respondent	4	3	7		3.5
Respondent	3	5	10		5
Respondent	3	3	6		3
Respondent	4	4	8		4
Respondent	4	4	8		4
Respondent	3	3	6		3
Respondent	5	4	9		4.5
Respondent	5	5	10		5
Respondent	5	5	10		5
Respondent	4	4	8		4
Respondent	4	4	8		4
Respondent	2	2	4		2
Respondent	3	3	6		3
Respondent	2	2	4		2
Respondent	2	3	5		2.5
Respondent	4	4	8		4

	Q 12	Q 13	Sub	Mean/Construct 4
Respondent	5	5	10	5
Respondent	4	5	9	4.5
Respondent	5	5	10	5
Respondent	4	3	7	3.5
Respondent	4	4	8	4
Respondent	5	5	10	5
Respondent	5	2	7	3.5
Respondent	5	5	10	5
Respondent	4	4	8	4
Respondent	4	4	8	4
Respondent	5	5	10	5
Respondent	4	4	8	4
Respondent	5	5	10	5
Respondent	5	5	10	5
Respondent	4	5	9	4.5
Respondent	5	5	10	5
Respondent	5	5	10	5
Respondent	4	4	8	4
Respondent	4	3	7	3.5
Respondent	4	4	8	4
Respondent	5	4	9	4.5
Actual	180	174	354	177
Mean	4.091	3.955	8.045	4.023
Median	4	4	8	4
Standard	0.858	0.939	1.670	0.835
Variance	0.736	0.882	2.789	0.697
Mode	4	4	8	4
Count	44	44	44	44

Appendix 25 Questionnaire 2 – Other Comments, Sex, Nationality, Age, Previous Computer Knowledge, Economic Status

	Q 14	M/F	Economic Status	Nationality	Previous Com Know.	Age Band
Respondent 1	Enjoyed Learning with	F	SW	African	Non	65+
Respondent 2		M	Non Cont-Pension	EU,Non-Irish		65+
Respondent 3		F	Non Cont-Pension	Irish	Non	65+
Respondent 4		M	Non Cont-Pension	Irish	Non	65+
Respondent 5		F	Non Cont-Pension	Irish	Non	65+
Respondent 6	More Confidence-Can buy					
Respondent 7		F	Employed PT	Irish	Non	45-64
Respondent 8	Had some basic skills	F	Employed PT	Irish	Yes-Often	45-64
Respondent 9	Fell more capable about	F	SW	Irish	Yes-Not Often	45-64
Respondent 10	Did not have enough time	F	Employed FT	Irish	Yes-Not Often	45-64
Respondent 11	Did not thinks he could	M	Non Cont-Pension	Irish	Non	65+
Respondent 12	Enjoyed Learning with	F	Non Cont-Pension	Irish	Yes-Not Often	45-64
Respondent 13		F	SW	Irish	Non	45-64
Respondent 14	Enjoyed Learning with	F	SW	Irish	Non	65+
Respondent 15	Enjoyed mixing with	M	SW	Irish	Non	65+
Respondent 16	Really enjoyed learning	M	Employed FT	Irish	Yes-Not Often	45-64
Respondent 17		F	Other-House Wife	Irish	Non	45-64
Respondent 18		F	SW	Irish	Non	45-64
Respondent 19		F	SW	Irish	Non	45-64
Respondent 20	The computer helps her	F	SW	Irish	Yes-Not Often	65+

	Q 14	M/F	Economic Status	Nationality	Previous Com Know.	Age Band
Respondent 21	No reading	F	SW	Irish	Non	45-64
Respondent 22		M	Employed FT	Irish	Yes-Not Often	45-64
Respondent 23		F	SW	Irish	Yes-Not Often	45-64
Respondent 24	Enjoys learning with the	F	TA	Irish	Yes-Often	35-44
Respondent 25	Likes the course	M	Employed PT	Irish	Non	35-44
Respondent 26		F	Employed PT	African	Non	25-34
Respondent 27		F	Employed FT	Irish	Non	35-44
Respondent 28	Happy with Tutor	M	Employed PT	Irish	Yes-Not Often	25-34
Respondent 29	Confidence in ability,	M	SW	Irish	Non	35-44
Respondent 30		F	TA	Irish	Yes-Often	18-24
Respondent 31		M		Irish	Yes-Often	25-34
Respondent 32		F	TA	Irish	Yes-Often	35-44
Respondent 33		F	SW	Irish	Yes-Not Often	35-44
Respondent 34		M	Employed PT	Irish	Yes-Not Often	25-34
Respondent 35	Would like to learn with	M	SW	Irish	Non	25-34
Respondent 36		M	SW	Irish	Yes-Not Often	35-44
Respondent 37	Did a computer course	F	Non	Irish	Yes-Not Often	35-44
Respondent 38		M	Other	Irish	Non	45-64
Respondent 39	The computer is very	F	SW	African	Non	25-34
Respondent 40	It helped me in my life	M	SW	African	Yes-Not often	35-44
Respondent 41		M	SW	Irish-	Non	25-34
Respondent 42	I am success in class	F	SW	Irish-	Non	35-44
Respondent 43	Don't enjoy it but like	F	Employed PT	African	Yes-Not Often	25-34
Respondent 44		M				

Appendix 26 Interview Findings - Learners

Respondents/ Course Title	Learning with Computer	Disability	Course Duration Wks	Feeling Difficulty	Learner's Literacy Level	Confidence Growth	Frequency of Computer Use	Belief improved skills by computer	Tutor Support	Improved Belief in capability
Learner 1- Computer Course	Yes	Learning Disability	5 months	Medium	Low Literacy	Yes	Daily	Yes	Yes	Yes
Learner 1- English Course	No	Learning Disability		High	Low Literacy		Nil			No
Learner 2- Mathematics	Yes	None	12 months	High	Low Numeracy	No	Once a week	No	Yes	No
Learner 2- Mathematics	No	None		Low	Low Numeracy	Yes				Yes
Learner 2- Internet and Email		None		Medium	Low Numeracy	Yes	Once a week	Yes	Yes	Yes
Learner 3- English Course	Yes	None	8 months	High	Low literacy Low Numeracy	Improved	Once a week	Yes	Yes	Yes

Learner 3- Mathematics	Yes	None	8 months	Medium	Low Literacy Low Numeracy	-	Once a week	Yes	Yes	Yes
Learner 4 English Course and computer course	Yes	Physical Disability	5 months	Medium	Low Literacy Low Numeracy	Yes	Daily		Yes	

Appendix 27 Interview Findings – Tutor Observations

Course Title	Learning with Computer	Dependent Learner/Learner with disability	Course Duration Wks	Learner's Literacy Level	Observed Self-Esteem	Observed Self-Confidence	Enjoyment Level	Needs	Interaction with Group	Confidence Growth	Frequency of Computer Use	Computer Improved Basic Skills	Tutor Support	Improved Belief in capability	Improved Personal Life	Improved Belief in Self	Willingness to use computer in future	Limitations
Computer Literacy	Yes	Yes	20 weeks	Low 80% of learners	Low-50% of learners	Low - 50% of learners	High	-	Yes	Yes - 50% of learners	Daily	Yes	-	Yes	-	Yes - 60% of learners		Literacy
Reading and Writing	Yes	No	10 weeks				High	-	-	Yes	Once a week	Yes	-	Yes	Yes	-		Literacy

Appendix 28 Overview of Courses

Numeracy:

- Numbers
- Applying Addition, Subtraction, Multiplications and Divisions
- Decimals
- Percentages, Ratio and Fractions
- Personal Finance
- Measurements-Volume, Distance, Areas and Weights
- Basic Geometry-Directions and Shapes
- Interpreting results from given information

Literacy:

- Reading
- Writing
- Spelling
- Communication

Computer Literacy:

Internet and Email

Appendix 29

T-Test - Self-beliefs

The question: *Is the overall mean of self-beliefs of learners learning with technology significantly higher than the overall mean of the self-beliefs of learners learning without technology?*

The Null hypothesis, H_0 , is: the mean, μ , of self-beliefs of learners learning with technology = the mean of self-beliefs of learners learning without technology:

$$H_0 : \mu_1 = \mu_2$$

The Alternate hypothesis, H_1 , is: the mean, μ , of self-beliefs of learners learning with technology $>$ the mean of self-beliefs of learners learning without technology:

$$H_1 : \mu_1 > \mu_2$$

$$t_{(n_1+n_2-2)} = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{S^2_{\text{pooled}} \left[\frac{1}{n_1} + \frac{1}{n_2} \right]}}$$

Where $n_1 = 35$, $n_2 = 44$, $\bar{x}_1 = 3.983$, $\bar{x}_2 = 4.148$

and

$$S^2_{\text{pooled}} = \frac{(n_1 - 1)S_1^2 + (n_2 - 1)S_2^2}{n_1 + n_2 - 2}$$

Where $S_1 = 0.441$, $S_2 = 0.440$

$$S^2_{\text{pooled}} = \frac{(35 - 1)0.194 + (44-1)0.194}{35 + 44 - 2}$$

$$\mathbf{S^2_{\text{pooled}} = 114.934}$$

Therefore

$$t_{(n_1+n_2-2)} = \frac{35 - 44}{114.934 \left[\frac{1}{35} + \frac{1}{44} \right]}$$

Using Excel, we have:

	Mean, μ_1	Mean, μ_2
Mean	3.983	4.148
Standard Deviation	0.441	0.44
Significance Level	10%	
Count	35	44
Variance	0.194	0.194
Pooled Variance	114.934	
df=($n_1 + n_2 - 2$)	77	
t Calculated	2.27471	
t Critical Value	1.29264	

Calc-t > Critical-t, therefore the null hypothesis is rejected. This shows that there is evidence that the

self-beliefs from learning with technology are significantly higher than from learning basic skills without technology.